

INSIDE DOPE

U Learn to live and laugh—
Thus delay your epitaph
A

By GEORGE
F. TAUBENECK

Stories of the Week
Gags of the Week
Quotes of the Week
News from the Central Stations
Interruption
Read and Weep
Rugged Individualism
Notes from Abroad
What's Happened to The Hoover Report?
Philosophy of the Week

Stories of the Week

Regularly every afternoon, 10 minutes after his shift left a defense plant, Youssuf Yoonyun appeared at the gates with a wheelbarrow loaded with sawdust. And just as regularly a guard emptied the sawdust and searched it for stuff Youssuf might be taking away. Never did he find any contraband tools or loot.

So frustrated was this guard that he threw up his job and became a cab driver. Three weeks later he met Youssuf in a neighborhood bar, and he was oiled up enough to ask:

"Wotinell were you stealing out of the factory, anyway?"

"Wheelbarrows," Youssuf revealed.

A big dealer who hails from Bad Axe, Mich., knocked off for a couple of months last winter, and toured Cuba and Florida.

Following his stay in Havana, which was lubricated with a cozy glow and a flow of native rum potions, he started calling himself "The Count of Cuba Libra."

Nobody seemed to mind, or question his fake title, until he registered at an obscure Florida tourist court.

"Count of Cuba Libra. Bad Axe, Mich.," he signed with a flourish.

The proprietress glanced at the signature, and at our friend.

"We don't take no phoneys and we don't like shenanigans," she grimaced. "This is a respectable hostel. And you can't tell me there's any such place as Bad Axe."

Gags of the Week

Most refreshing humorist in many a day is Herb Shriner, the Hoosier Pagliacci. Some of his best gags:

"Congress was real smart this year. They raised the liquor taxes, then made other taxes so high people had to drink to forget their troubles."

"One-way streets didn't work out back home. There was only one road, and when the drivers took it to the end they couldn't get back to town."

"Here in New York I've spent 20 bucks in tips to get my hat back, and still it doesn't fit me."

"We don't have to match our enemies man for man. We aren't going to dance with them."—ROBERT A. LOVETT, Secretary of Defense.

Quotes of the Week

"There is one thing to be said for ignorance—it sure causes a lot of interesting arguments."—Gas Flame.

"Your woman customer is twins. There is the 'love and kisses' aspect of women and the 'wash the dishes' side. To interest women you must speak to either or both of those aspects. Your message must stress romance and the sentimental side of family life or you must be practical and tell her how

(Concluded on Page 6, Col. 1)

ISSUED EVERY MONDAY AT 450 W. FORT ST., DETROIT 26, MICHIGAN. ESTABLISHED 1926.



AIR CONDITIONING & REFRIGERATION News

THE NEWSPAPER OF THE INDUSTRY

Vol. 74, No. 1, Serial No. 1,346

January 3, 1955

Subscription Price, \$6 Per Year

Reentered as second-class matter October 3, 1936 at the post office at Detroit, Michigan, under the Act of March 3, 1879.
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Mitchell Suggests Price Increases On Some Models

CHICAGO — Across-the-board retail price increases of \$20 per unit have been recommended by the Mitchell Mfg. Co. on eight of its 1955 model room air conditioners.

Models excluded in the increase are the 1½-hp. M-1245 and M-12485 models for which recommended retail prices are \$499.95 and \$509.95, respectively, and the ½-hp. M-235 for which no recommendation is made.

E. A. Tracey, vice president, explained the increase as a "bonus" for dealers who handle Mitchell's 1955 line of more powerful, top quality sets.

The price increase gives Mitchell the longest markup and largest margin per unit of any (Concluded on Back Page, Col. 3)

Brunner Appoints Hunker, Roberts

UTICA, N. Y.—Frank C. Hawk, vice president in charge of sales of Brunner Mfg. Co., has announced the appointments of Paul A. Hunker to the newly-created position of sales manager of refrigeration and Wallace C. Roberts as advertising and sales promotion manager.

Addition of the "Brunner-Metic" semi-sealed condensing units made in the company's new Gainesville, Ga. plant and increased emphasis being placed on the larger capacity units made at Utica call for expanded sales and advertising and sales promotion programs, it was pointed out.

Hunker is well known in the refrigeration and air conditioning industry, having been associated with General Electric Distributors; R. Cooper, Jr. of Chicago; G-E Nela Park, Cleveland; Rex Cole, Inc.; and in New York, Nathan-Straus-Duparquet, Inc. over a 16-year period and Chrysler Products

(Concluded on Page 4, Col. 5)

Welbilt To Show Room Units at Winter Mart

MASPETH, L. I., N. Y.—A completely restyled series of window air conditioning units will be shown for the first time at the Chicago markets by Welbilt Stove Co.

The units feature separate controls for the cooling and ventilating systems, as well as "Sill-Slim" mounting, a term the company will use to describe the flush installations which are possible with the new models.

"Users may cool or heat their rooms, and at the same time exhaust stale room air or bring in fresh air if they so desire," the company pointed out. "Or the units may be set to do any of these things individually, at the press of a button or flick of a switch."

"Opening or closing of the ventilator door is completely automatic. Manual control knobs have been eliminated on all models."

The new line consists of three (Concluded on Back Page, Col. 4)

Advise Tighter Credit Terms To Insure Good '55 Business

CHICAGO — The business outlook in general for next year is very good, but the growing competition for the consumer's dollar calls for special care in making loans for financing instalment sales.

That was the advice of a number of bankers who spoke during the national credit conference of the American Bankers Association.

A. Crosby Kemper of City National Bank & Trust Co., Kansas City, said that because of high dealer mortality recently in the appliance field, bankers should require adequate down payments and reasonable terms. He said this applied both to business handled directly and credit to finance companies on customers' notes.

Kemper pointed out that in most lines consumer credit terms "have been stretched to the limit." Edward F. Gee, president of Robert Morris Associates, said appliance paper is one of the categories in which there are "scattered sectional feelings that some discreet reduction may be in order to make way for more products." (Concluded on Page 4, Col. 4)

Shana Has Air-Cooled Home Air Conditioner

CHICAGO — A new self-contained, air-cooled air conditioning unit for the moderate priced home has been announced by Shana Mfg., Inc. here.

Harry G. Schaffer, president, said the "Shana-Air" unit can be installed inexpensively and is designed for the four and five-room home that wants air conditioning "on a low lost basis."

The new unit is said to be ideal for smaller, inexpensive homes (even those with hot water or steam heat). It will deliver 16,500 B.t.u. at ASRE conditions and is able to operate efficiently at high outside ambient temperatures, according to the manufacturer.

The company pointed out that it also manufactures the Shana-Air complete home air conditioning line and a complete line of Shana (Concluded on Back Page, Col. 1)

Distributor Takes In Used Refrigerators From Dealers

CLEVELAND—A new plan under which it accepts trade-in refrigerators from its dealers has worked out so successfully thus far for Progressive Appliance Distributors, Inc., Servel outlet here, that the firm may extend the policy to other products its distributes, according to Earl Bosley, president.

For each used refrigerator accepted, the distributor allows a part payment toward purchase of new merchandise. Progressive sells the used refrigerators to large apartment house owners.

By relieving dealers of used (Concluded on Back Page, Col. 3)

'Design for Use' Features Mark '55 Frigidaires

Casement Window Coolers, Built-In Range Models Are Among New Products

DAYTON—Refrigerator combinations with large separate food freezers in the bottom of the cabinet and "picture window" vegetable storage facilities in the door highlight new household appliances just announced by Frigidaire for 1955.

The appliances include 13 refrigerators, 11 electric ranges, four room air conditioners, two upright food freezers, and built-in cooking equipment. Four dishwashers, a food waste disposer, automatic washers, and dryers were announced earlier.

The refrigerators range in size from a 4.4-cu. ft. undercounter model to a 15-cu. ft. refrigerator-freezer combination with two vertical doors. Among features are larger freezers, a full-width egg server that tilts down out of the door, an ice tray that makes small "cubeblets," and full-width roll-out shelves.

Also introduced were compact ⅓ and ½-hp. room air conditioners for casement windows, plus (Concluded on Page 17, Col. 1)

NARDA Program To Tackle Problems of Dealer In New Year

CHICAGO—The three-day 1955 annual convention of the National Appliance & Radio-TV Dealers Association will get under way at the Conrad Hilton hotel here Sunday afternoon, Jan. 9, with four panel discussions.

The discussions will cover executive development, advertising and sales promotion, television service, and "salespower." A cocktail reception will follow.

Monday's program will start with a breakfast session, after which Dan Packard, general sales manager of Kelvinator, will open (Concluded on Back Page, Col. 2)

McGraw Electric Buys Coolerator from IT&T

DULUTH, Minn.—Coolerator Div. of International Telephone & Telegraph Corp. has been sold to McGraw Electric Co., Chicago, it was announced recently in a joint statement by Stanley Luke, Coolerator president, and Alfred Bersted, McGraw vice president.

Max McGraw, president of McGraw, said that Bersted, who is in charge of the company's appliance divisions, will head Coolerator. He added that Luke, an IT&T official, will not be associated with newly-acquired firm.

(Concluded on Page 4, Col. 5)

DON'T MISS . . .

Solving Water Problems

Many Troubles Can Be Eliminated or Lessened by Proper Design and Use of Right Materials, Water Conference Hears

7

How To Make Small Ad Budgets Pay Off

Regular Schedule of Little Advertisements May Result In Greater Return Than a Few Big Splurges

8

Art of Sales Management

Fifteen Principles for Getting Extraordinary Results from Ordinary Salesmen

8

How To Lengthen Compressor Life

A Discussion of Factors Involved in Prolonging Life of Compressors by Cramer of Carrier

14

. . . In This Issue



CONTRACT engaging the Detroit agency of Brooke, Smith, French and Dorrance, Inc., to handle Deepfreeze advertising is signed by F. F. Duggan, vice president and general manager of Deepfreeze Appliance Div. Seated beside Duggan is W. C. Ayers, agency executive vice president, who will take charge of the Deepfreeze account personally. Looking on are, left to right, J. S. Pingel, former Michigan State All-American football player, who is account executive for the agency; J. A. Rishel, Jr., general sales manager of Deepfreeze; and Raymond A. Johnson, advertising and sales promotion manager.

Apex Establishes Prices on Washers, Dryers

CLEVELAND—Retail prices of its 1955 line of washers and dryers have been announced by Apex Electrical Mfg. Co.

"Wash-A-Matic" models 6010 and 6011, leaders of the automatic washer line, are priced at \$327.50

and \$277.50, respectively. The firm's low-priced semi-automatic model 6012 lists at \$227.50.

A price of \$247.50 has been set for dryer model 7010, while the model 7011 dryer will sell for \$207.50.

Westinghouse To Display At Mobile Home Show

MANSFIELD, Ohio—Westinghouse, for the first time, will display its appliances for the mobile home market at the National Mobile Home Show being held in Cleveland beginning Jan. 10, it was announced by W. E. Slabaugh, Jr., manager of the contract sales department for the Westinghouse Electric Appliance Div.

Highlighting the appliances on display will be four refrigerator models from the new 1955 Westinghouse line. Two of these models feature automatic defrosting at the push of a button. Other features include full-width freezer compartment, door shelves, vegetable "Humidrawers," and butter keepers.

In addition to the Westinghouse exhibit space, No. 18F, Westinghouse appliances will also be featured in the mobile home displays.

MASS AIRPLANE FLIGHT for Philadelphia area dealers paid off for Raymond Rosen & Co., Inc., distributor of Kelvinator and Leonard major appliances. Fifty dealers flew to Kelvinator headquarters in Detroit as guests of Thomas F. Joyce, president of Rosen, where Kelvinator General Sales Manager D. A. Packard (left) showed the 1955 Kelvinator and Leonard refrigerator models to Edward H. Rosen (left of group), sales manager; Joyce (next to Rosen) and Philadelphia area dealers. Orders were placed by the dealer group for 27½ carloads of appliances. Reception was so enthusiastic for the new "Foodarama," shown above, that the Rosen company placed an additional order for 15 carloads.

Ad by Akron Dealer Group Emphasizes Importance Of Reliable Dealers

AKRON, Ohio—The importance of buying appliances from a responsible dealer was stressed by the Akron Appliance Dealers Association in an institutional newspaper advertisement which featured the association emblem displayed in member stores.

The ad carried the complete roster of the association membership. Copy read:

"When you buy a home appliance, it is to your best interest to buy from an authorized, responsible dealer. Note that the manufacturer's warranty applies only when the purchase was made through the authorized, responsible dealer channels."

"And only from the authorized, responsible dealer can you expect the important careful delivery, correct installation, complete demonstration, competent service, the convenient terms."

"The Akron Appliance Dealers Association is made up of authorized dealers in this area, appointed officially by the various appliance manufacturers. Each qualified as a dealer because of his facilities, responsibility, and desire to serve you properly and courteously."

Judge Dismisses Suit Against Firm Refusing Discount House Advertising

TOLEDO—Federal Judge Frank L. Kloeb has dismissed a damage suit filed against a newspaper and radio station which refused to carry the advertising of a Fostoria appliance discount house.

Nine area merchants also were sued.

The court sustained a motion by Fostoria Daily Review Co., publisher of the Fostoria Review-Times, to dismiss the complaint brought by Richard Lehman, Risingsun, Ohio, trading as the Fostoria Rural Supply Co.

Judge Kloeb held that the suit, in which Lehman asked treble damages of \$5,000 on the ground that both the newspaper and radio station WFOB had refused to accept his advertising after last Dec. 9, "did not state a claim on which relief can be granted."

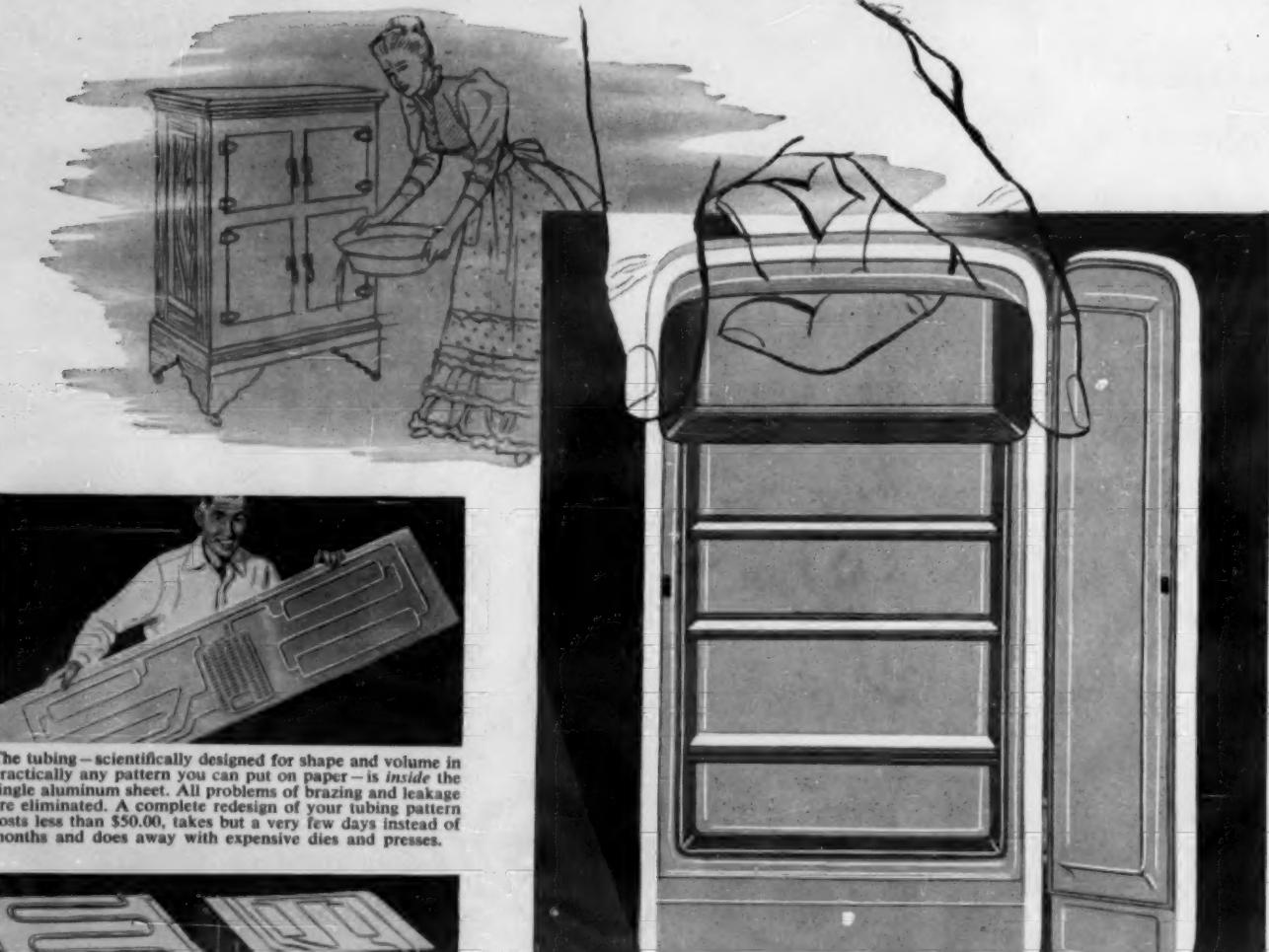
The court's memorandum added that the plaintiff failed to allege that the defendants, which included the nine area merchandising firms who reportedly had asked the newspaper and radio station to discontinue the plaintiff's advertising, "have effected any injury to the public." The memo pointed out that the plaintiff apparently is not selling goods in interstate commerce.

Judge Kloeb observed that the plaintiff did not allege that the defendants through a combination and conspiracy have effected "a direct and substantial restraint of interstate commerce."

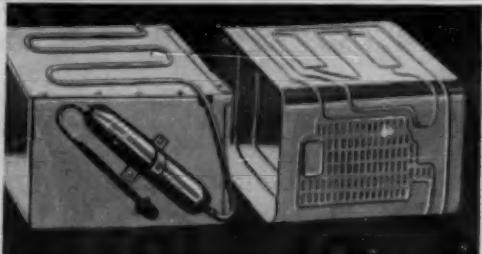
The complaint as amended had accused the newspaper and WFOB of having a monopoly in the area advertising field and charged the latter violated the Federal Communications Act.

WESTERN **Roll-Bond** PROCESS

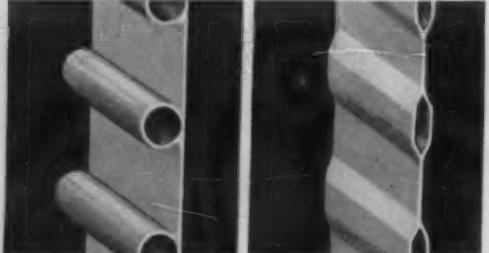
offers the greatest advance in Refrigeration since the Drip Pan left the kitchen!



The tubing—scientifically designed for shape and volume in practically any pattern you can put on paper—is inside the single aluminum sheet. All problems of brazing and leakage are eliminated. A complete redesign of your tubing pattern costs less than \$50.00, takes but a very few days instead of months and does away with expensive dies and presses.



All other evaporators require separate accumulators which must be produced and attached at additional cost. They must be brazed into the system and need at least two joints. With the new Western Roll Bond Process, the waffle pattern accumulator illustrated is part of the plate and is furnished at no extra cost. Leakage and brazing are eliminated.



For automatic defrosting, the surface of a Western Roll Bond evaporator is entirely free of voids and pockets. This eliminates any possibility of moisture collecting and causing "frost blisters" that separate the tubing from the wall.

Right now, evaporators made by the new Western Roll Bond Patented Process are being used by one of America's leading refrigerator manufacturers. Already, in over 300,000 homes, the Western Roll Bond evaporator is proving its superiority over the old-fashioned brazed tube type. The Western Roll Bond evaporator transfers heat so efficiently that a substantial reduction in the amount of refrigerant used is possible.

So revolutionary is this process that wherever your operations now call for heat exchangers of any type or for any purpose, Western Roll Bond offers a more efficient, a more economical answer. This completely new era of refrigeration design already is an assembly line reality. Now is the time to begin a serious investigation of what this Western Roll Bond Process can offer your own firm. Your inquiries are invited.

WESTERN **Roll-Bond**

a product of
metals division
OLIN MATHIESON CHEMICAL CORPORATION

Plants • East Alton, Ill.—New Haven, Conn.

At Chicago Furniture Mart,
Spaces 508A and 509A

FIRST SHOWING!

The most exciting line
of appliances
in Frigidaire history

**Not just new features—not just improvements—but all new models,
plus brand-new additions to an already outstanding line**

NEW! See the revolutionary Frigidaire Cold-Pantry! A combination food freezer-refrigerator so different it required a totally new name.

New Freezers, too! Uprights and chest types to meet every buyer's needs.

NEW! See the Electric Ranges with the magic "Thinking Top." Now comes automatic cooking on top that's as carefree, trouble-free, and work-free as automatic oven baking and roasting!

NEW! See a brand-new concept of built-in range units. Here's something totally new and different in both surface units and wall ovens. They will obsolete all others to set the pace for built-in cooking, baking and roasting in today's modern homes.

NEW! See the exclusive "Turbo-Spray Dishwasher." A new idea in washing action and rack loading at last makes the dream of 5-minute dishwashing come true. Pre-rinses, washes and dries electrically. Also there's a new Food Waste Disposer.

Finest Laundry Equipment, too. Recently announced . . . already a big sales success! See the famous Frigidaire Porcelain Pair and the new low-priced Thrifty Pair.

NEW! See the dramatic 1955 Room Conditioners. More compact, streamlined, with beautiful new styling—for both regular and casement type windows. New Twin-Powered models offer a new sales-making idea in local comfort and economy.

These new products will be shown to dealers and retail salesmen in dramatic, fast-moving, factory conducted meetings, as follows:

Albany	Jan. 17	Detroit	Jan. 28	Memphis	Jan. 21	Philadelphia	Jan. 13-14	St. Louis	Jan. 10	Spokane	Jan. 19
Atlanta	Jan. 31-Feb. 1	El Paso	Jan. 24	Miami	Jan. 26	Pittsburgh	Jan. 21	Salt Lake City	Jan. 21	Syracuse	Jan. 17
Birmingham	Jan. 28	Fort Worth	Jan. 21	Milwaukee	Jan. 12	Portland	Jan. 14	San Antonio	Jan. 28	Tampa	Jan. 24
Boston	Jan. 12	Hartford	Jan. 10	Minneapolis	Jan. 31	Roanoke	Jan. 6-7	Seattle	Jan. 17	Washington	Jan. 14
Buffalo	Jan. 24	Houston	Jan. 26	St. Paul	Jan. 31	Rochester	Jan. 26	Sioux City	Jan. 28	Wichita	Jan. 17
Chicago	Jan. 6-7	Indianapolis	Feb. 2	New Orleans	Jan. 31						
Cleveland	Jan. 19	Kansas City	Jan. 20	Oakland	Jan. 11						
Dayton	Jan. 6-7	Los Angeles	Jan. 5-6	Oklahoma City	Jan. 14						
Denver	Jan. 24	Louisville	Jan. 19	Omaha	Jan. 26						

Get complete details from the Frigidaire Distributing Headquarters office that serves your area.



FRIGIDAIRE Built and backed by General Motors

Room Air Conditioner Sales Soar In Florida--

(Concluded from Page 1, Col. 4) units were sold during the month, or twice the year-ago volume. These units accounted for 4% of total gross dollar sales.

Combined sales of refrigerators,

electric ranges, and water heaters amounted to 12,725 units. This is double the number sold in October, 1953.

These units accounted for 40% of total dollar sales.

Air Filter Firm Formed

HOUSTON, Texas—Filtraire Co. has been formed here by Herbert Chabsek to manufacture and sell air filters for air conditioners and central heating plants. The firm will be located at 4315½ Montrose.

Tighter Credit--

(Concluded from Page 1, Col. 3) fitable or more attractive loan ele-

ments."

He said appliances, television, specialty shops, and other small retailers "are listed among units and industries that loan men must screen with exceptional care in the months ahead."

The household appliance field was also discussed by another speaker, K. W. Tibbits, vice president of National Credit Office, Inc., New York. He said several mergers in the industry "have been prompted by the aim of the manufacturer to place himself in a stronger competitive position.

To attract the better distributors, it is necessary for the manufacturer to be in a position to offer a complete line of appliances. Increased selling and advertising expenses cannot be supported by a line of only two or three items.

"Because of the growing list of appliances, the distributor in turn is finding it necessary to have a larger investment in merchandise and in receivables. Normal borrowing facilities frequently are insufficient to supplement the distributor's own working capital. The variety of products has created a steadier volume of business throughout all of the year, making seasonal repayments of loans more difficult.

In recognition of this circumstance, a number of the larger manufacturers have developed programs intended to assist their distributors to overcome the problem of adequate financing. The availability of such financing plans is a strong selling point in attracting the distributor. . . .

"Prices in the past year have declined, though recently they have leveled off. But the thinner profit margins have hastened expenditures for automatic machinery and integrated plants. . . .

"A year ago, as a result of over-production, there were heavy stocks of almost every type of appliance. That condition has been overcome, with the exception of air conditioning units. Buying turned upward in September.

"Clearing out of the old merchandise enabled the manufacturers to bring out new models, lower priced, mechanically improved, and better styled. Items showing the best gains are electric ranges, clothes dryers, upright freezers, and the very popular 8-cu. ft. refrigerator."

Tibbits said more new merchandise than ever before plus high purchasing power should make 1955 an excellent year.

He also predicted that many firms next year will quit producing window-type room units.

Regarding pricing of consumer durable goods, Tibbits said "it is being admitted that price maintenance agreements cannot be enforced successfully in so competitive a market.



W. C. ROBERTS



P. A. HUNKER

Brunner Appts.--

(Concluded from Page 1, Col. 2) through Climate Control, Newark; Hupp Corp., Cleveland; and most recently as northeast district manager of the Commercial Refrigeration Div. of Servel, Inc.

Hunker's immediate activity will be supplementing the activities of the district sales managers in the introduction of the Brunner-Metic line to the manufacturing and the jobbing trade, the company said.

Roberts was formerly advertising manager and assistant sales manager of American Emblem Co. of New Hartford, N. Y.

He served three years in the Marine Corps during World War II and upon discharge, joined the editorial staff of the Utica Observer Dispatch. After five years in the newspaper business, including a period as Gannett News Service legislative correspondent, he became associated with the Utica public relations firm of Ball & Grier, Inc.

Coolerator--

(Concluded from Page 1, Col. 5)

What Coolerator's place in the McGraw organization will be was not immediately known. McGraw was expected to announce details on this at a later date.

The sale did not include Coolerator real estate. It involved only the current inventory of appliances, all machinery and fixtures, the Coolerator name, and an option to buy the two Coolerator plants in Duluth, according to the statement.

A property sale may result if excessive costs and taxes at Duluth can be adjusted," Luke and Bersted said. "McGraw's plans for manufacturing either in Duluth or elsewhere will be announced shortly."

IT&T acquired Coolerator from Gibson Refrigerator Co. in 1951.

The two Coolerator plants, which have a production capacity of 1,300 refrigerators a day, are now closed.

Miami Firm In New Quarters

MIAMI, Fla.—Biscayne Air Conditioning Co., of which Daniel McKenzie is president, is moving to larger quarters at 600 N.E. 13th St. and is now an authorized contractor-dealer of Carrier equipment. The firm now operates a fleet of 50 trucks and cars.

When It Comes to Carbonators . . .

**WHAT'S BEST FOR YOUR CUSTOMERS
IS DYNAMITE FOR YOUR SALES!**

THAT'S THE **SUPERCHARGER CARBONATOR**

BY CARBONIC DISPENSER

INCORPORATING THESE SUPERIOR FEATURES

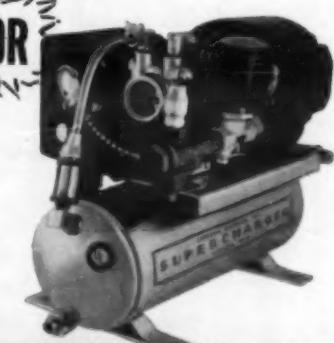
1. Patented jet foamscent method produces highest degree of carbonation possible—93% to 100%. U. S. Patent #2,588,677.
2. Minimum number of moving parts, plus "Pump Sentinel," Carbonic Dispenser's exclusive fool-proof pump protection device, is users' insurance against costly repair bills.
3. Midget size—16" x 13½" x 9½". Giant Capacity—100 gallons per hour.

THE PREFERRED CARBONATOR—from NEIGHBORHOOD TAVERNS TO THE NATION'S FAMOUS COCKTAIL LOUNGES, FROM DRUGSTORES TO MAJOR LEAGUE BALLPARKS.

MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Equipment.

Name _____
Address _____
City _____ State _____



CARBONIC **CD**
DISPENSER INC.

General Offices: Canfield, Ohio
Branch Offices:
1851 Randolph St., Los Angeles, Calif.

IN CANADA: GENERAL EQUIPMENT CORP., LTD., TORONTO, ONT.

GO PLACES WITH CARRIER!

Via TWA Constellation

FREE TRIP AROUND THE WORLD

Fascinating sightseeing stops all along the route



A GLAMOROUS ALL-EXPENSE GLOBE-CIRCLING TRIP FOR TWO

*is the Grand Prize in this year's
Carrier Icemaker Salesmen's Sweepstakes*

Also—4 7-DAY EXPENSE-PAID VACATIONS

(FOR TWO IN EACH REGION)

Also—27 BIG BONUS AWARDS

Also—SCORES OF MERCHANDISE PRIZES

NO LOSERS. Every sale maker wins something (in addition to substantial commissions). Only 5 sales required to qualify for the big-award finals. Fair handicap system gives every contestant an equal chance.

**NO ENTRY FEE. CONTEST STARTS JANUARY 24—
RUNS 10 WEEKS.** Wonderful opportunity for go-getter salesmen. For the whole big story

MAIL THE COUPON NOW

DEALERS—Take advantage of Carrier's sales-promotion tools to help your salesmen win in this contest—and fatten your own profits as well. Order this material, and stock, from your distributor at once.

Cube-and-crushed models in all wanted sizes and combinations. They make ice at about one-fifth the cost of delivered ice.



Carrier

AIR CONDITIONING
REFRIGERATION

CARRIER CORPORATION, 310 S. Geddes St., Syracuse, New York

Without obligation or cost on my part, tell me all about how to "Go Places with Carrier" in the 3rd Annual Carrier Icemaker Sales Sweepstakes.

Name _____
Company _____
Address _____

Name _____
Address _____
City _____ State _____

AUGUST, 1954 Exclusive!

**KELVINATOR 1955
AUTOMATIC WASHER***

with 2 Completely Separate Automatic Washing Cycles—one cycle for regular fabrics, heavy loads — plus separate cycle for fine fabrics, light loads.

*WITH MATCHING ELECTRIC DRYER.

OCTOBER, 1954 Exclusive!

**THE NEW KELVINATOR
1955 ELECTRIC RANGE**

The 1st and Only Range with Disposable ALUMINUM OVEN LININGS.* The only range with "2 in 1" Rocket Units and Dual "Picto-Heat" Controls... heats tailored to fit pan size!

*Patent applied for.

...and now

KELVINATOR 1955 REFRIGERATORS!



...with

- ★ SMART NEW STYLING!
- ★ BIGGEST FREEZER CHESTS!
- ★ TRUE AUTOMATIC DEFROSTING!
- ★ NEW FOOD-KEEPING FEATURES!
- ★ 8 DECORATOR COLORS...

(Electric Ranges in Matching Colors)

1955 Model KA-120
11.6 cu. ft., 80-lb. Frozen Food Storage

without extra inventory costs for dealers! And, in every other important essential, more of the stuff more sales are made off!

SEE THEM AT YOUR **Kelvinator** DISTRIBUTING HEADQUARTERS

INSIDE DOPE

U Learn to live and laugh—
Thus delay your epitaph

By **GEORGE F. TAUBENECK**

(Concluded from Page 1, Col. 1)
to do things better or more economically."—MRS. JEAN WADE RINDLAUB, "Advertising Woman of the Year."

"Keep searching for the other fellow's good points. Remember, he has to hunt for yours and maybe he'll be harder put than you are."—Baldeneus.

News from the Central Stations

Electric utilities plan to double their rate of growth during the next three years, according to industry sources. In the last two decades their power load has increased at the rate of 6% annually. Last year they had an 11% capacity margin over peak load. By 1955 it is estimated that their generating plants will be able to carry a load of 110 million kilowatts.

Materials shortages are keeping expansion behind schedules, and defense needs have increased demand; so, in some areas, demand may exceed supply. Less reserve capacity is needed now than formerly, however, because the present network of interconnecting transmission lines make it possible to transfer power from one locality to another with relative ease.

Electricity generated in the U.S.A. during 1951 totaled 427 billion kilowatthours, or 43% of the world's total. Refrigeration and home appliances have pushed up electrical power expansion, inasmuch as the average home consumed 73% more electric power in 1951 than in 1944. Air conditioning will be a potent source of further increases in the nation's power output, too.

Interruption

"In wine and man the noblest social flavors come with years. It is pure waste to ask to dinner any man under 40."—S. WEIR MITCHELL.

Read and Weep

The *Shield*, quarterly magazine of the Indiana state police, printed this intriguing item in a recent issue:



Check Super-Flo's amazing low price, for both original equipment and replacement, against ordinary dryers which do not have Super-Flo molded drying elements, massive fiberglas depth filters and spun-end copper shells. Available to the trade through wholesalers everywhere.

REMCO INCORPORATED ZELIENOPLE, PA.

Here's Harry Alter's DEPENDABOOK No. 161

REFRIGERATION PARTS and Supplies plus

Electric-Motor Parts, Air Conditioning and Heating
There are over 9,000 items illustrated, described and rock-bottom-priced in our newest DEPENDABOOK. So—get and use this money-saver! Write for your copy to

The HARRY ALTER CO., Inc.
1728 S. Michigan Ave., Chicago 16, Ill.
134 Lafayette St., New York 13, N.Y.

"Fingerprints classifiers of the Indiana state police department, unable to classify the blurred prints submitted by an upstate sheriff, patiently returned the cards to the official several times, together with requests that 're-takes' be made of the prisoner's digits.

"Greatly exasperated, the sheriff sent in a final set of prints with the following note:

"This is the fourth time that we have taken this man's prints. If these prints can't be read, send them back—we'll send you his fingers."

Rugged Individualism

Col. Eddie Rickenbacker recalled to friends recently that in 1913 he set a record in a Mason automobile. Few of those present ever heard of a Mason car. He explained that the Mason was built at Newton, Iowa, in a plant owned by a man named Mason, and that F. L. Maytag financed the venture. Investing friends lost \$90,000, and Maytag lost everything he had.

Years later that same Fred Maytag made \$27,000,000 with his washing machine. At Christmas of 1926 he rounded up Mason car losers, and paid back the money they'd put up—with interest at 6% for more than 15 years.

Notes from Abroad

Residents of equatorial Singapore whose bedrooms are mechanically cooled have found that air conditioning is a wonderful thing—in fact, too wonderful in some cases.

As is the case with heat sufferers elsewhere, those in Singapore who have air conditioned bedrooms sleep more soundly than those without such modern comfort. Which would seem to be just what the doctor ordered.

Only trouble is that the sleeping-including feature of air conditioning has somehow become known to the underworld of the city. Sad result is that burglars are concentrating on the houses with air conditioning as sites for their nocturnal operations!

The first two women in the Greek village of Polykastron to try United Nations dried milk had twins. Now the relief committee is having a lot of trouble convincing other women that the milk is "safe."—London Times.

What's Happened to The Hoover Report?

Created by Congress with the support of six Democrats and six Republicans, presided over by former President Herbert Hoover who has worked long and hard to reorganize our government for more efficient and economical operation, and aided in its study of our ramshackle, topsy-turvy bureaucracy by a staff of expert task forces, the Hoover Commission has figured out ways to avoid overlapping waste. At a minimum, it has proved, its proposals could save taxpayers more than \$4,000,000 a year.

First of the commission's reports was submitted to Congress Feb. 5, 1949. Others followed soon. Enactment of half of these reorganization plans followed; and already they are saving taxpayers an estimated \$2,000,000,000 a year. Adoption of the remaining plans would save them as much more.

Here are examples of waste in

our government—facts unearthed by the bipartisan Hoover Commission. In one section of the Veterans Administration the commission found 24 supervisors for 25 employees. The Bureau of Reclamation and the Army Corps of Engineers ran surveys for a dam in Hell's Canyon, Idaho. Each survey cost taxpayers \$250,000—and only one survey was needed.

A farmer who wrote to the Department of Agriculture for advice on fertilizers received five different and conflicting answers from five different agencies. Nearly half of the 89 new Veterans Administration hospitals now being built or planned are located in areas where adequate staffs are not available.

In government hospitals the construction cost per bed runs from \$20 thousand to \$51 thousand as against an average cost of only \$16 thousand per bed in private hospitals.

The Veterans Administration uses four times as much manpower per insurance policy as private insurance companies do, yet takes five times as long to pay claims.

The General Services Agency (a product of the Hoover Report recommendations) found that one Federal agency had stocked a 93-year supply of fluorescent bulbs . . . and that another had enough loose-leaf binders to last 247 years.

"Hidden" subsidies to airlines add millions of dollars a year to the Post Office deficit.

An Army camp in Alaska, which

cost \$16 million, was torn down and the salvaged lumber sent to Seattle. Shortly afterward a government agency sent it all back to a point 10 miles from the original camp site.

Competition for public funds between the Bureau of Reclamation and the Army Corps of Engineers has cooked up plans for \$52 billions worth of projects, many of which are protested violently by citizens who live in the areas affected.

Few people deliberately waste their own money. But too many people are willing to stand by and watch while the government wastes it for them.

Now is the time for action! Every thinking citizen can help his country and himself cut waste in the Federal government by an annual \$5½ billion simply by backing the Hoover Report recommendations.

Half these recommendations have already been passed by Congress. The savings they're bringing us now run into billions. But the remaining half are still unenacted and *they must be passed in '55*.

Write your Congressman. Tell him that you want the Hoover Report recommendations made law. Unless you do, there's a good chance that these beneficial bills will be pigeonholed through pressure from selfish groups who don't care about saving *your* tax money, but do want to make a killing for themselves.

Enactment of half of the Hoover Commission's comprehensive and integrated reorganization plan isn't sufficient or satisfying. Failure to put all these economies into effect permits deadhead overlapping, flagrant waste and devilish corruption to continue.

Philosophy of the Week

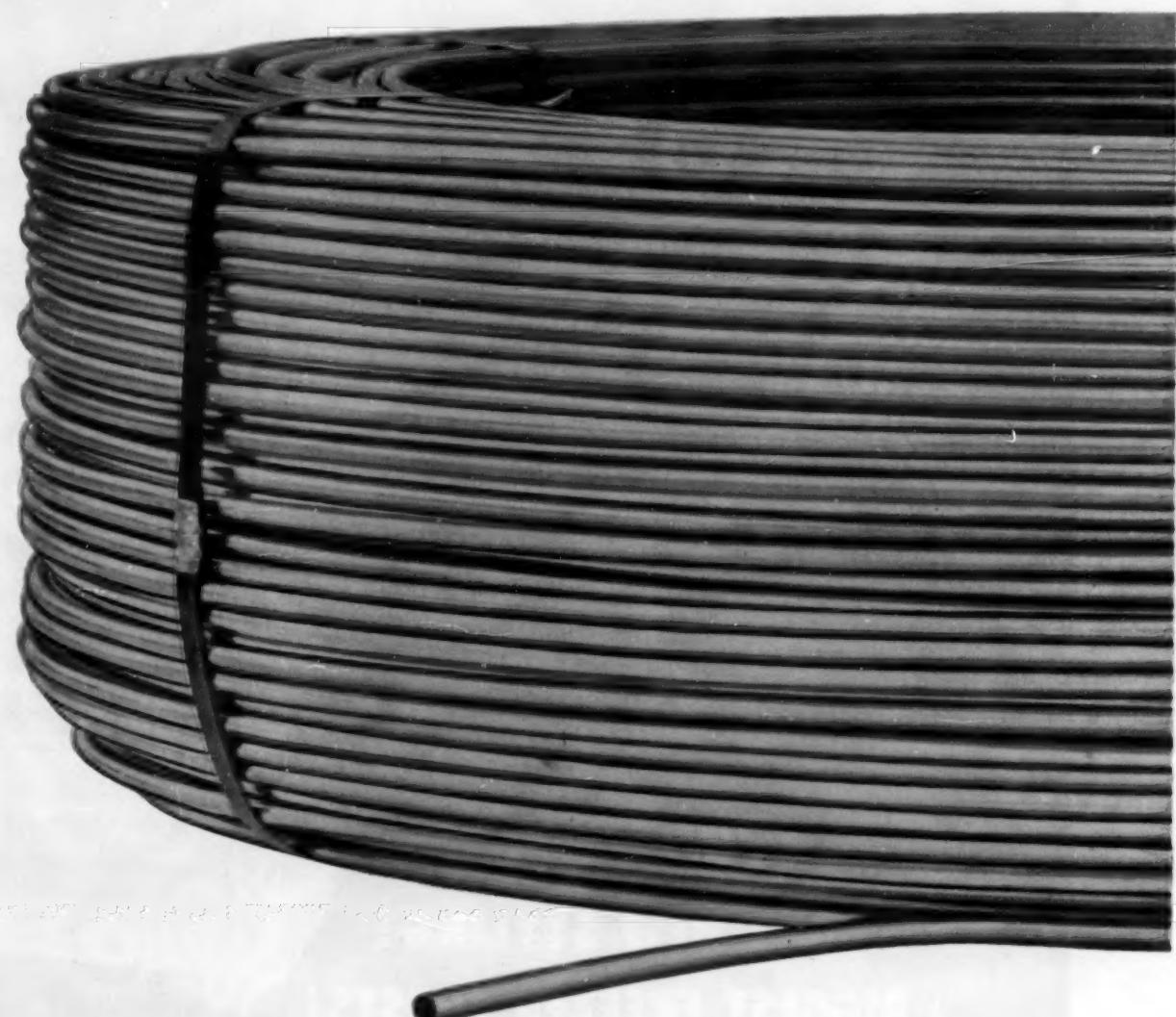
Men of cheerful disposition win jackpots.—HERBERT HOOVER.

"If an opinion contrary to your own makes you angry, that is a sign that you are subconsciously aware of having no good reason for thinking as you do."—BERT RAND RUSSELL.

"Our basic concept of society is so superior to that of the Russians that, if a total war can be avoided, time definitely is on our side."—SENATOR FULBRIGHT.

"The frontiers which divide mankind are not primarily the national or political frontiers. They are frontiers of the mind and the spirit which spring from limitations of training and experience, differences of memory and tradition and belief and taste, and the wilful or accidental exploitation of these limitations and differences for sinister ends."—ROSS MCLEAN, UNESCO.

An able man attains power through gentle words and resolute actions.



Want 4000-ft. coils of dependable tubing?

WHY BUNDYWELD IS BETTER TUBING

Bundyweld starts as a single strip of copper-coated steel. Continuously rolled twice around laterally into a tube of uniform thickness. Then it's . . .

and passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and brazed through 360° of wall contact.



NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead and less chance for any leakage.

SIZES UP TO 5/8" O.D.

Bundy Tubing Distributors and Representatives: Cambridge, Mass.; Austin-Hastings Co., Inc., 226 Binney St.; Chattanooga 2, Tenn.; Pearson-Deakin Co., 823-824 Chattanooga Bank Bldg.; Chicago 32, Ill.; Lapham-Hickey Co., 3333 W. 47th Place; Elizabeth, New Jersey; A. B. Murray Co., Inc., Post Office Box 476; Los Angeles 58, Calif.; Tubesales, 5400 Alcoa Ave.; Philadelphia 3, Penn.; Rutan & Co., 1717 Sansom St.; San Francisco 10, Calif.; Pacific Metals Co., Ltd., 3100 19th St.; Seattle 4, Wash.; Eagle Metals Co., 4755 First Ave., South Seattle 5, Wash.; Allis-Chalmers Alloy Metal Sales, Ltd., 181 Flagg St., E.

Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.

Water Problems

Proper Design and Use of Right Materials Can Help To Eliminate Many Difficulties, Engalitcheff Tells Water Conference

PHILADELPHIA—"Proper design of equipment and the use of proper materials can eliminate, or help to eliminate to a great extent, many of the difficulties encountered in the field," declared John Engalitcheff, Jr., president of Baltimore Aircorl Co., at the Water Conference held during the 50th annual meeting of the American Society of Refrigerating Engineers here.

In water conservation equipment Engalitcheff:

(1) Cautioned against the use of dissimilar metals which cause galvanic action;

(2) Expressed a preference for commercial galvanized sheets over hot-dip galvanizing after fabrication, the sheets being finished with one coat of zinc-chromatized aluminum paint;

(3) Urged provision for adequate "blow-down";

(4) Suggested that proper design and operation could in many cases avoid the need for water treatment.

"It is my honest belief," he said, "that superior quality and performance is the goal of any reputable manufacturer when he designs his equipment."

"By this I do not mean to imply that the manufacturers are faultless and not guilty of the most atrocious mistakes—and the guilty ones are not necessarily restricted to the smaller companies, either.

"The reason for those mistakes, I believe, could not be better expressed than in Ralph Westcott's own words—'conditioned ignorance and preconceived ideas based on faulty analysis.'

(Westcott, consulting engineer of Los Angeles, served as chairman of the Water Conference.)

"However, the manufacturer is not always at fault for the incorrect use of materials, finish, or design. Sometimes the manufacturer is influenced by public opinion manifesting itself in the form of rigid specifications," explained Engalitcheff.

CORROSION PROBLEMS

"One of the major problems that a manufacturer of water conservation equipment must combat is corrosion. All water conservation equipment by virtue of its contact with water, most of which is contaminated by various impurities, is extremely vulnerable to corrosion.

"Now we all know that in water

conservation equipment dissimilar metals should not be used. Yet, time after time, you see specifications calling for an evaporative condenser of galvanized construction with copper coils.

"If you ask why, you get the answer, 'We had one and the galvanized casing rusted out—the copper coil was intact. Conclusion: the only thing that stands up is copper. Consequently, we want copper coils.'

"Little do they realize," Engalitcheff emphasized, "that zinc and copper are practically on the opposite ends of the electro-chemical series, and in this case, zinc being the sacrificed metal, was stripped from the galvanized casing by the presence of the copper coil, thus causing deterioration of the casing."

At this point Engalitcheff projected on the screen a millivoltmeter to show the potentials between certain metals immersed in plain tap water, including galvanized iron to galvanized iron (no potential); galvanized iron to copper (considerable potential), and galvanized iron to stainless steel (also considerable).

"The effect of galvanic action

Editor's Note: One of the highlights of the 50th annual meeting of the American Society of Refrigerating Engineers held in Philadelphia was the Water Conference.

One of the several talks presented at this conference is published on this page. Later issues will contain the contributions of H. W. Hottel of Harvey Hottel, Inc.; and E. H. Hurst of National Aluminate Co.

can be minimized by placing in the water a chunk of metal of still higher potential than the sacrificed metal, making this new metal sacrifice itself instead of the basic material used. However, this is a remedy and not a cure. The cure is to avoid the problem by using similar metals to begin with," he asserted.

"The accepted material for evaporative condensers is galvanized steel. Galvanized construction is very satisfactory—it has good resistance to corrosion; the zinc has excellent adherence qualities to steel, and galvanized finish has excellent anti-abrasive properties which are lacking in any paint finish.

'GALVANIZED AFTER FABRICATION'

"Much emphasis has been placed on the magic phrase 'galvanized after fabrication,'" Engalitcheff continued.

"Unquestionably, any part on which any welding has been done must be galvanized after fabrication. However, we have done considerable hot dip galvanizing on large panels, and it is my opinion that the result was inferior to commercial hot dipped galvanized sheets because of the excessive warping of the sheets and also because the adherence of the zinc coating was inferior to that of commercial hot dipped galvanized sheets.

"In hot dip galvanizing centrifugal fans, we found that not only were the fans hard to balance but that they were weaker structurally because the pickling acids, having been drawn into the tight crevices from which they are virtually impossible to remove, had been trapped by the zinc and sealed in the crevice, causing failure at that point," he declared.

Regarding finishes, Engalitcheff said he prefers to use one coat of "what we call 'zinc-chromatized aluminum paint' which has exceptional resistance to corrosion" and "exceptional adherence qualities without any tricky preparation of the surface. Furthermore, it is simple and easy to apply as well as re-apply in the field if the need arises.

"We do not pretend to be the experts on finishes, nor do I feel that we have the last word in finishes. What I am trying to illustrate is the fact that we feel that the galvanizing alone, whether hot dipped or commercial sheets, is not the final answer to corrosion in water conservation equipment, and by further protecting the galvanizing . . . you can prolong the life of the equipment by a ratio of 10 to 1.

SCALING

"The last point I would like to touch on is the old 'bugaboo' of scaling," Engalitcheff added. "There is no question that at elevated temperatures scaling occurs, and in some localities water is so hard that scaling can be prevented by water treatment alone. However, these localities are limited.

"Manufacturers can greatly de-

crease, or quite often, practically completely eliminate scaling by providing automatic dilution of recirculated water by so-called adequate 'blow-down' waste water apparatus.

"It is seldom recognized that the average evaporative condenser evaporates a sump tank full of water every two hours of operation; or, in other words, the concentration of minerals is doubled in the first two hours of operation.

"If the condenser is operated 1,000 hours, the concentration will be 500 times that of the original one," Engalitcheff asserted.

"In industrial or downtown areas the air carries fumes which are washed out by the water as the air passes through the equipment. The fumes combine with water and form very harmful solutions.

EDUCATING THE PUBLIC

"By providing adequate blow-down and by educating the public in the importance of its use, the concentration of harmful solutions is kept to a minimum, thus prolonging the life of the equipment," he said.

"Another important factor which decreases the scaling is the proper and total water coverage of the evaporative condenser coil," he pointed out.

"Parts of the coil which are allowed to get dry, or practically dry, by poor distribution or insufficient water will become covered with scaling in no time.

"Yet, if ample water is flowing over every part of the coil constantly, the scaling can be greatly reduced or eliminated. It appears that it is not the actual water rate that is the controlling factor but rather the distribution.

"Complete and constant coverage of the surface by water minimizes scaling," declared Engalitcheff.

"As a last remark, I would like to say that I feel that water treatment lately has been over-emphasized. Water treatment is a remarkable thing, and sometimes it is the only salvation.

"However, I do feel that lately it has been offered as a cure for all ailments. Yet, in my opinion, a great many of these ailments never would have occurred if the equipment had been properly designed and operated."

Cool Deal

ERIE, Pa.—Enterprise Department Stores have leased a four-story building here which will be completely remodeled and air conditioned as site for a new store.



Long coils are an old story at Bundy.

For years, we've been making them for customers who specified them. So, despite statements that there's something unique about the production of long coils, there really isn't.

If you want long coils of dependable tubing, just come to headquarters for small-diameter tubing, where you can get quick, quantity delivery on Bundyweld steel tubing, in coils up to 4000'—in sizes from capillary to and including 3/8" O.D. On occasion, we've even filled orders for 13,000'-coils of Bundyweld in capillary sizes.

Bundyweld means far more than

long-length coils, however. In it, you get the refrigeration industry's most reliable tubing. *Inherently* reliable because it's the only tubing double-walled from a single strip of copper-clad steel. *Inherently* reliable because of its solid copper bond throughout 360° of double-wall contact. *Inherently* leakproof tubing—proven in refrigerators and freezers for over 20 years. It's tubing that comes to you meticulously made and inspected, carefully packaged, refrigeration-clean inside and out. And it comes on schedule.

Need fabrication help?

If you need fabrication help, you'll get

it from engineers who thrive on solving tubing problems. If the problem proves unsolvable, our engineers can often suggest some slight design modification that will result in economical production and unimpaired function. They're resourceful men, as you'll see.

Of course, if you'd like us to take on your fabrication of small- or giant-parts runs, we stand alerted at all times to give you fast delivery of parts, accurately produced, checked, ready in every way for assembly.

Call, write, or wire for any information you'd like. **Bundy Tubing Company, Detroit 14, Michigan.**

Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

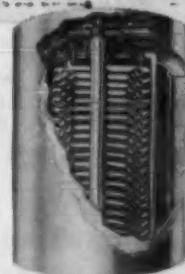


**For All Your
Refrigeration and
Air Conditioning
Requirements**

Curtis
REFRIGERATION
AIR CONDITIONING
COMMERCIAL

Curtis Refrigerating Machine Division
of Curtis Manufacturing Company
1912 Kienlen Ave., St. Louis 20, Mo.
Established 1854

Filtrine Since 1901
Tank Type
WATER COOLERS



- ◆ Extra-large storage
- ◆ Safety from freeze-up
- ◆ Fast hourly recovery
- ◆ 20-year life construction

Capacities: 5 to 500 g.p.h.
Storage: 2 to 240 gals.
Water coolers for all uses
factory-packaged with your
condensing unit. Write for
literature.

FILTRINE MFG. COMPANY
53 Lexington Ave., Brooklyn 36, N.Y.

A guide to smart advertising and merchandising practices.

This series of articles comprising ideas and principles for the small retail or manufacturing business is written by James D. Woolf, who was for more than 20 years a vice president and director of J. Walter Thompson Co., one of the largest advertising agencies.

By James D. Woolf

How To Make Small Ad Budgets Pay Off

Two or three years ago, a piece of mine in this column dealt with what can be achieved when only a limited amount of money can be invested in advertising. This article brought me more than the usual number of letters from readers asking for further information and advice.

This morning's mail brought me a letter from an appliance and housewares retailer whose business is situated in a city of about 40,000. His letter reads, in part, as follows:

"I hear fantastic stories of what miracles advertising can perform for certain businesses. But I note that most of these successes involve huge advertising budgets. However, I am no Marshall Field's or Macy's and I can't spend that kind of money. I have a small store in the town's business sec-

tion, but not in the busiest shopping area. At most, I cannot afford to spend more than \$3,000 or \$4,000 for my entire advertising and promotion effect. Do you think a sum as small as this is likely to help my business, or would I simply be wasting my money?"

AN ABSOLUTE MUST FOR EVERY BUSINESS

All small businesses, like this man's, are continually occupied with the problem of attracting customers to their stores. Often their stores are situated on side streets, as against big competitors who are located on the busiest thoroughfares.

What is the first thing that the small business—or any business of any size for that matter—must do? The answer to that is simple: it must make sure that the people of the town know of its existence. As many people as possible must know—and must remember—that



"... You'll get more for your money if you spread it out ... against spending it for a few big splurges."

it has desirable goods for sale at such-and-such an address. The greater the number of people who know that a certain kind of store is in business at the corner of Fifth and Elm, the greater will be the number of shoppers. That's elementary.

A TRUE CASE HISTORY

In my small city is a man—one of many—who makes and sells concrete building blocks. His place of business is far out on the edge of town. This man has been a consistent advertiser since his first day in business. His ad, two inches over a single column, appears every day in our local newspaper. As far as I know, he hasn't missed a single insertion in five years. He also carries regularly a three-inch ad in our classified telephone directory.

Now what does this man's modest advertising accomplish? In the first place, it keeps his town reminded, day in and day out, that his place is headquarters for building blocks of guaranteed quality. In the second place, each ad includes his phone number and an offer of prompt delivery. Today, after five years of this, there probably isn't a man in town who doesn't think of this firm when he thinks of building blocks. And yet the advertising budget can't possibly exceed a couple of thousand dollars a year.

REPETITION IS REPUTATION

It is important to remember that in-and-out, flash-in-the-pan advertising seldom pays off. As a rule, you'll get more for your money if you spread it out over a whole year, week in and week out, as against spending it for a few big splurges. Not always, but often than not, 48 eighth-pages will do a better job for you than that six full pages, at the same cost.

It is an absolute must for you to keep your name in front of the public day after day. The old saying, "Out of sight, out of mind," is as true of business as it is of anything else. If you can afford nothing more than a daily one-inch ad featuring the name of your store and what you sell, you are better off than if you do no advertising at all.

I have often observed that small advertisers get discouraged too quickly. They run a few small ads—over a period of several weeks perhaps—and nothing much happens. So they quit and decide that advertising is not for them.

YOUR ADS MUST SAY SOMETHING USEFUL

When your ads are only an inch or two in size, you are naturally limited to a few words of copy, principally your firm name, what you have to sell, and your address.

When your ads are larger—an eighth-page, say—try to give your readers some useful information in return for their attention. When you publish an ad you are, in effect, asking readers for a few minutes of their time. They soon learn—if you are a regular advertiser as you should be—whether it is worth their while to give you their attention. If your copy is not informative and newsworthy—or if it is boast and bombast—or if it is of the nonsense variety—your readership will steadily dwindle.

Art of Sales Management

15 Basic Principles for Getting Extraordinary Performance from Ordinary Men

MIAMI BEACH, Fla.—The art of sales management is to get extraordinary performance out of ordinary men, M. F. Williams, Miami branch manager of the Fuller Brush Co., declared at the recent convention of the Refrigeration & Air Conditioning Contractors Association here.

Those who would be a sales manager must first of all be able to lead people, Williams declared. Given that premise, he outlined 15 basic principles the successful sales manager must follow.

They are:

1. Keep your men excited. About the only release from monotony the salesman has is the excitement that is generated by the sales manager. So the successful sales manager will keep his men reaching for goals—through contests, drives, quotas, and other devices that appeal to the men's imagination and competitive spirit.

"Keep men excited" are the three most important words in sales management, he said, the importance of which women have known and used through the ages.

2. Expect enough—but not too much and not too little. The sales manager has to know what to expect from his men and how to get it.

3. Establish clear-cut objectives. The sales manager must determine what, where, how, and when.

4. Set up a program to reach those objectives. The program should set forth where to start, what steps to take, and in what order those steps should be taken.

5. Sell the program enthusiastically. If the sales manager cannot get enthused about his program, he can't expect the salesmen to. The salesmen must have enthusiasm and they get it from top management.

6. Plan ahead for yourself as well as for others. The sales manager should know where he is going at all times, for a well-planned program will usually produce results.

7. Coach men in the "how" of selling as well as the "what." Most salesmen need basic training in selling, continuous training on

the lines they sell, and coaching on specific points where they are weak. When the salesmen haven't learned to sell, Williams asserted, it usually means that the sales manager hasn't taught.

8. Continually inspect and promptly correct. Make sure your salesmen are doing the job you want them to. By continual inspection the sales manager can determine that they are following instruction and if they are not, he can correct the error before it becomes serious.

9. Establish incentives. Make the best use of all the sales tools at hand.

10. Keep the score and post it promptly. Salesmen naturally have competitive spirit. They like to know where they stand in relation to other salesmen and to sales goals. Knowing where they stand, they always have the urge to get a little higher.

11. Recognize superiority. Good salesmen want more than money. They also want recognition for a job well done.

12. Set the example. Do not ask your men to do anything that you wouldn't do yourself.

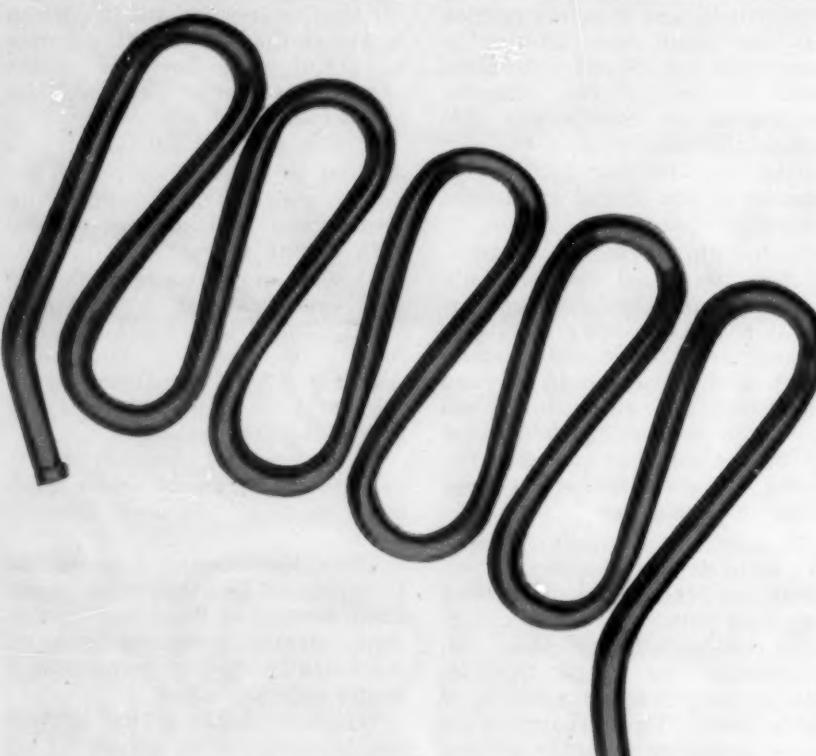
13. Keep yourself the boss. Don't make pets and don't try to be on the same plane as your men. Familiarity breeds contempt and nothing will ruin a sales organization faster than that.

14. Encourage and assist your men. The leader must be prepared to supply encouragement and assistance to his men whenever they need it.

15. Be a Solomon to your men. Listen sympathetically to the salesman's problems. Letting him get them off his chest has great therapeutic value. Then either pat him on the back or kick him in the fanny as the case requires.

Cool New Drugstore

CHARLESTON, W. Va.—Air conditioned, West Virginia's first self-service drugstore has been opened by Cohen Drug Co. at the new Gateway Shopping Center in St. Albans.



LONGER LIFE

... SPECIFY COPPER

One good way to stretch the service life of refrigeration and air conditioning units is to specify Wolverine copper tube as a component. Troubles fall off to zero! And there's good reason. First, you enjoy the traditional benefits of long life if the tubing is of copper or its alloys. And if the tubing is Wolverine, you'll quickly recognize the values of Tubemanship, consistent quality control and research that bring you dependable tubing and tubular products made especially for refrigeration and air conditioning.

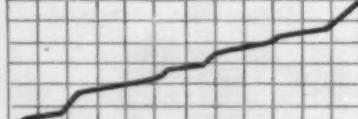
Wolverine is proud of its close identification with the industry; the two, in fact, have grown up together. That's the reason that Wolverine products are accepted as "Industry Standards."

The serpentine coil shown above is one example of Wolverine fabrication. Such coils are available in $\frac{1}{4}$ ", $\frac{3}{16}$ " and $\frac{5}{16}$ " and can be formed to customer's print. Wolverine is also widely known for such products as Capilator®, Spun End,® Trufin® in copper and its alloys. Write today for a copy of the Wolverine refrigeration tube catalog. It'll help.

WOLVERINE TUBE, 1413 Central Avenue, Detroit 9, Michigan.

*REG. U. S. PAT. OFF.

GROWING UP WITH
THE REFRIGERATION
INDUSTRY!



WOLVERINE TUBE
DIVISION OF CALUMET & HECLA, INC.
Manufacturers of Quality-Controlled Tubing
and Extruded Aluminum Shapes

EST. 1916

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA.
SALES OFFICES IN PRINCIPAL CITIES

Wolverine Trufin is available in Canada through the Unifin Tube Company, London, Ontario.

EXPORT DEPARTMENT, 13 EAST 57TH STREET, NEW YORK 16, NEW YORK



If you're looking for reliable custom-built motor service at stock motor prices, let Scruggs be your source of supply. Sample motor to your specs can be furnished immediately. New plant facilities now permit wider scope, quick deliveries, lower pricing.

You can shake your reputation on SCRUGGS MOTORS

THE Loyd Scruggs COMPANY
Festus, Mo.—A Dazey Corporation Subsidiary
MANUFACTURERS OF PRECISION INSTRUMENTS SINCE 1934

CHECK THESE QUALITY FEATURES

1. Copper-weld rotor for uniform performance.
2. Long-life sintered bronze bearings.
3. Extra large oil reservoirs.
4. Extremely quiet running.
5. Rotor electronically balanced.
6. Double varnish impregnation.
7. Design practically eliminates AC hum.

Residential Air Conditioning

Carrier Residential Air Conditioning --

(Concluded from Page 1)

entire home, he said. Refrigeration is supplied through two small copper tubes running from an air-cooled refrigerating unit located outside the dwelling.

SUMMER WEATHERMAKER

A third major product in Carrier's line of Home Weathermakers, the Summer Weathermaker is designed for installation completely independent of the heating system in homes equipped with warm water or steam heat or to provide air conditioning for those without any central heat at all.

"The unit requires installation of only a minimum-cost duct system, since distribution of air for cooling is far less critical than for heating in most parts of the country," he said.

The inside-the-home portion of the Summer Weathermaker contains cooling and dehumidifying coils, a centrifugal fan, and a filter. It can be suspended from the ceiling of a closet or utility room, placed in a crawl-space or attic, or hung from overhead floor joists in a basement, Lake pointed out, adding: "As a result, it requires no otherwise usable space inside."

The air-cooled refrigerating unit in its weatherproof, tamperproof cabinet can be installed outside in the yard, in a garage, or even in the basement with the addition of ducts for outside air, it was stated.

Over-all installed cost of a system with 2 tons of capacity which would handle the average-size 3-bedroom house could run as low as \$1,300 to \$1,400 including ductwork, Lake stated.

CARRIER PROVIDES FINANCING

This can be financed under a special three-year plan offered through Carrier dealers, as well as under conventional home improvement loan plans, or added to existing long term mortgages "at a cost of only a few dollars a month," it was noted.

"The duct system installed for this new unit can be extremely simple and inexpensive," Lake stated. "It is a fact not generally understood that the heating part of the year-round air conditioning task is what usually determines the layout of a duct system."

"Where temperatures drop below 15 or 20° F.—and this includes areas as far south as Atlanta—the best results in winter require that warm air be introduced along outside walls in what is called a perimeter system. This neutralizes at their source the chilly drafts people would otherwise feel due to the cold transmitted through windows and walls from outside."

"But where cooling alone is required, as in a Summer Weathermaker system, positive circulation becomes the basic purpose of system design rather than introduction of the air at any particular

place in the room.

"This means that in many cases installation of the duct system will take the form of lowering the ceiling in a central hallway. The air space between the old and new ceiling can then be used as the main duct with openings to admit conditioned air to each of the adjoining rooms.

"With an attic installation, short insulated air pipes can be run to overhead diffusers in each of the rooms."

In addition to existing homes, the new Weathermaker is also a solution for the complete air conditioning of an apartment, where space problems are frequently severe, Lake pointed out.

"A dropped ceiling in a hallway could be used as the distributing system, as in a home, and the air conditioning unit could be hung at the top of a hallway closet. The air-cooled refrigerating unit can be installed on the roof, in the yard outside in garden-type apartments, or on setbacks in taller apartment buildings. Copper tubing can be run up or down the outside of the building."

The inside-the-house air conditioning unit for the 2-ton model measures 21 in. high, 29 in. wide, and 24 in. deep. Respective dimensions for the 3-ton model are 21 in. by 41½ in. by 25¼ in.

All models of the Conversion Weathermaker employ air-cooled refrigeration.

The Conversion Weathermaker was introduced last year "to permit simple, low-cost year-round air



THIS NEW model of Carrier's Conversion Weathermaker is designed to convert down-flow forced warm air furnaces to year-round air conditioning. The furnace is lifted a few inches and the small counterflow coil placed underneath as shown in this typical installation in a first floor closet.

conditioning for homes equipped with forced warm air heating in good condition," Lake said.

The equipment consists of a small cooling and dehumidifying coil package which is installed in the furnace supply duct. This is connected with two small copper lines to a compact weatherproof and tamperproof refrigerating package which can be mounted in the yard, breezeway, garage, or other unobtrusive location, it was explained. The furnace blower and filter section is used to circulate clean air for conditioning.

Cost of installing a Year-Round Weathermaker in the average new home will range from \$500 to \$1,000 more than the cost of a heating system alone, Lake estimated.

"In addition the Weathermaker

Home can be designed around the air conditioning to incorporate savings which could absorb most or

The new models include:

1. Horizontal coil package—This is designed for use with horizontal furnaces, which are normally installed in the crawl-space or in the attic of basementless houses. It is slipped into the ductwork at the outlet end of the furnace, using the same type of support or suspension as the furnace.

2. Counterflow coil package—Designed for use with counterflow or down-flow furnaces, which are normally installed in a closet or utility space in basementless houses. To install year-round air conditioning, the furnace is lifted and the coil placed underneath, since air is circulated downward from the bottom of the furnace to ducts in or under the floor.

The initial models provided a furnace-top coil package for conventional furnaces installed in a basement, closet, or utility room.

Cost of a Conversion Weathermaker can run as low as \$900 completely installed, Lake said.

The smaller model of 2-ton capacity will handle homes of up to 1,200 sq. ft. in most areas and larger in some, Lake stated. The 3-ton unit will take care of virtually any home of 1,800 sq. ft. or possibly larger, he said.

SUMMER AND WINTER CONTROL

Control for both summer and winter operation is provided by a small thermostat panel mounted next to the furnace thermostat and interlocked with the furnace electrical system. A flick of a switch on the panel shifts the system from winter to summer operation.

The furnace thermostat controls the temperature level in winter while a dial on the Weathermaker panel regulates summertime weather. Another switch permits use of the fan only for filtered air circulation during intermediate seasons.

"The conversion unit is equipped with special smooth-finned cooling coils to minimize air flow resistance so that the average furnace fan can handle cooling also."

Dimensions of the coil packages are as follows:

Type of Capacity	Coll (tons)	Width	Depth	Height
Counterflow	2	24	32	12½
Counterflow	3	27½	34%	16%
Horizontal	2	16½	26%	16
Horizontal	3	20%	32%	16
Vertical	2	24	32	12½
Vertical	3	27½	34%	16%

The Year-Round Weathermaker is available with both air-cooled and water-cooled refrigeration and in models using either gas or oil for heating. Cooling capacities range from 1¾ tons up to 7½ tons.

FOR NEW HOMES OR REPLACEMENT MARKET

Year-round units are designed for installation in new homes or for replacement of warm air heating systems in existing homes using the same ductwork.

Cost of installing a Year-Round Weathermaker in the average new home will range from \$500 to \$1,000 more than the cost of a heating system alone, Lake estimated.

"In addition the Weathermaker

Home can be designed around the air conditioning to incorporate savings which could absorb most or

all of this extra cost and to provide far better homes from the standpoint of layout," he said.

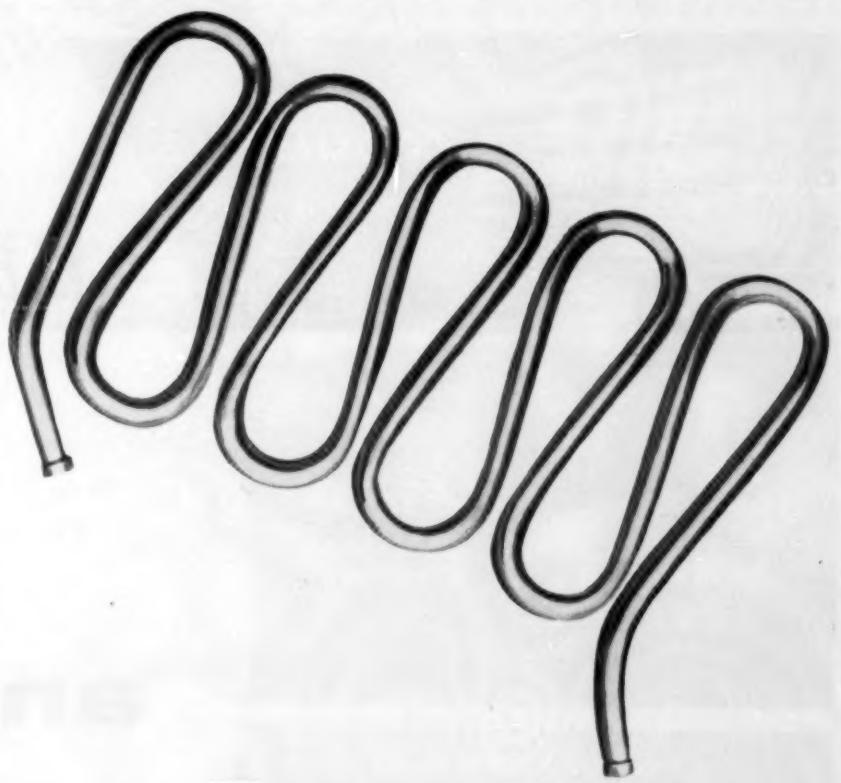
In existing homes, cost of the water-cooled 2-ton Weathermaker will range about \$500 to \$1,000 more than the cost of replacing the heating system alone, according to Lake. For the 3-ton Weather-



NEW CONVERSION Weathermaker model developed by Carrier is designed for addition to horizontal forced warm air furnaces, which are usually installed in the attic or crawl space of basementless houses. The coil package inserted in the ductwork at the discharge end of the furnace adds cooling, dehumidifying, and air cleaning. Cooling is supplied by an air-cooled refrigerating unit (right) installed in the yard.

maker the extra cost will run about \$700 to \$1,200 extra, he said.

With air-cooled condensing, the cost for both 2 or 3-ton models will be about \$200 to \$450 more depending on size, but at the same time all operating costs for water consumption are completely eliminated, it was noted.



REDUCE COSTS . . . SPECIFY ALUMINUM

Engineers pare weight from bulky refrigeration and air conditioning products with the use of aluminum tube. One of their best bets is to specify Wolverine. That's because Wolverine gives them something extra: the Tubemanship that adds up to reliable top-quality components. Wolverine aluminum tube is used for capillary tubing, suction lines and serpentine condenser and evaporator coils like the one above.

Result: lightness, adequate strength, and durability.

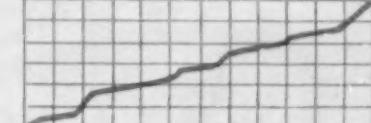
Wolverine fabrication facilities feature the unique Spun End Process—an economical, one-step process for the manufacture of accumulators, driers, strainers and other tubular-shaped parts from copper and aluminum.

Take a tip from leading manufacturers and count on Wolverine when next you order aluminum tube, either drawn or extruded. A good start will be to get a copy of Wolverine's Fabricated Tubular Parts Book. Write for your copy right now!

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Published Every Monday by
BUSINESS NEWS PUBLISHING CO.
450 W. Fort St., Detroit 26, Mich.
Telephone Woodward 2-0924.
New York Office: 521 Fifth Ave.
Telephone Murray Hill 7-7158.
Chicago office: 134 S. LaSalle St.
Telephone Franklin 2-8093.
Ohio Office: Commercial Bank Bldg.,
Berea, Ohio, Telephone Berea 4-7719.

Subscription Rates: U. S. and Possessions
and Canada: \$6.00 per year; 2 years, \$9.00;
3 years, \$12.00. All other countries: \$10 per
year. Single copy price, 40 cents. Ten or
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VOL. 74, NO. 1, SERIAL NO. 1,346

JANUARY 3, 1955

What's Good About Our Future?

Expert researchers into the vague "science" of Economics predict that we will experience occasional recessions, but no depressions, from now henceforth. Almost every major industry will, at one time or another, suffer its own little "dampening." But American business, as a whole, won't disintegrate as it did from 1932 to 1940, these experts aver.

Presently we are engaged in a rolling postwar readjustment, which affects first one segment of the economy and then another. Easy days of quick profits are gone. Severe competition, lowered margins, intensive cost cutting, vigorous promotional activities, and aggressive new product development are the Order of the Day.

We have returned to a *rugged normalcy*. Practically nobody likes it; yet, it's what we've been crying for unconsciously.

This appraisal by professional economists is supported by a broad historical view of what has been happening to us since the conclusion of World War II. All wars inevitably are followed by periods of extreme turbulence in our economic life. They put into motion great economic waves which persist for decades. Wars develop vast shortages, and support frantic efforts to rebuild production facilities destroyed during conflict.

Concurrently, they give a tremendous lift to capital formation—to fill backlog of demand accumulated during the restrictions. And, let's admit, wars give great impetus to technological advancement.

At the same time warfare balloons huge amounts of inflated money, and *debt*—plus population growth. That's why postwar periods have been marked by the biggest busts. It would be foolhardy to disregard these historical teachings.

Afterward politically-minded governments attempt to prevent

They'll Do It Every Time . . . Jimmy Hatlo



altogether any significant downturn in employment. "Boondoggling" is a common answer to the shift from war to peace. Many politicians don't want to pay the temporary price for a stabilized economy. If they're afraid of losing their jobs, they scream for government borrowing, and make-work inflationary schemes which raise prices.

However, there's hope in our present dilemma.

Business enterprises spending more on research each year than all the money spent on research in America's history prior to World War II. Few days pass without the announcement of a new industry or a new machine or process capable of lowering costs and increasing productivity. Physical sciences are being harnessed to provide a firm basis for another upsurge in our standard of living.

Future gains in production also will be enhanced by improved medical technology, which should (1) reduce the number of days lost because of illness, (2) lengthen life, and (3) give us healthier, happier, better-fed lives.

However, a Utopia of perpetual problemless prosperity isn't in the cards. Rapid growth is, by nature, a jerky and uneven process. Temporary periods of market gluts and overexpanded capacity occur despite the best wishes of politicians. When consumers buy too much, and when too-optimistic businesses become overextended, personal retrenchment is indicated. Hence, "selective" recessions would appear to be inevitable.

Brilliant ingenuity will be *de regeur* in the next 10 years to take full advantage of our nation's potentialities for growth—and, at the same time—avoid pitfalls of a highly competitive and unstable environment.



Ryukyu Utilities
P. O. Box 273
Naha C.P.O.
Okinawa, R. I.

Editor:

We are a firm consisting of three Americans, partners, with a staff of Japanese and Okinawan engineers, and a shop and field force of Filipinos and Okinawans.

Our present major activity consists of the engineering, procurement, installation, and servicing of any size, model, or manufacture of air conditioning equipment.

Although we have been in business only a comparatively short time we have made numerous installations, some of the larger of which we list herewith. We are also presently actively engaged in making standard and specialized air conditioning installations under contract with branches of the U. S. Armed Forces here.

Humidity and general atmospheric conditions here present some unique and unusual problems, none of which, fortunately, we have, as yet, been unable to solve.

In the past six months we have completed, tested, and put in operation the following installations: Rycom Central Post Exchange, 130 tons; Sukiran Branch Post Exchange, 20 tons; Castle Terrace Club, 55 tons; Sukiran Telephone Exchange, 30 tons; American Consulate, 10 tons; Machinato Telephone Exchange, 7½ tons; Cup & Saucer Restaurant, 7½ tons.

In addition we install various

types and sizes of window and cabinet units.

We receive your publication and find it both interesting and informative.

Thought you might like to hear from the other side of the globe.

JAMES E. ECKLES
Manager

Virginia Smelting Co.
West Norfolk, Va.

Editor:

In the Dec. 6 issue of AIR CONDITIONING & REFRIGERATION NEWS you ran a series of articles captioned "Statehood Pride." After reading through the column on page one I immediately turned to page nine to find our "Statehood Pride" sorely wounded—no mention of Virginia. We are proud folks down here. Perhaps you will consider the two following bits of legislative nonsense that are indigenous to the Old Dominion:

The ordinance of a Virginia city prohibits cattle from grazing on its principal street.

A city ordinance of Williamsburg provides that no persons allow their cattle to graze on the Duke of Gloucester St., the principal thoroughfare of the city.

A Virginia law requires motorists to stop their cars on meeting a hansom-drawn vehicle on the highway.

There is a law in Virginia requiring motorists to stop their cars when approaching a horse-drawn vehicle and to lead the horse past before re-starting their engines.

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Testing Your Advertising

Agency Man Tells RACCA Members How To Judge Effectiveness of Their Programs

MIAMI BEACH, Fla.—A simple test to judge the effectiveness of a dealer's advertising was offered to the Refrigeration and Air Conditioning Contractors Association at its recent convention here by Tally H. Embry, owner of the Tally Embry Advertising Agency.

The test is to ask yourself these three questions:

1. Would you show your advertisement to your own children?
2. Will it harm your firm in the long run?

3. Does it conform to your own standards of morality and good sense? In other words, what would you think if you read the advertisement as a prospect?

If your advertising passes this test, you can be sure that you are on the right track, Embry said.

He pointed out to the contractors that the objective of advertising is to open the door for their salesmen, to help them make sales. Advertising, he said, will present a message your salesmen cannot do efficiently or effectively.

The first objective in developing an advertising program, he declared, is to know whom you are talking to. You must find out where your market is and what type of people are in it.

Secondly, you must determine what type of message will get the sales idea across effectively to the people you want to reach.

Thirdly, you must determine what type of media will get the message to your customers. In the case of air conditioning contractors, he indicated that direct mail would probably be the most effective, followed by newspaper advertising.

Other suggestions offered by Embry to develop an effective advertising program are:

Use more spiel and less deal. Spend more of your advertising space telling prospects why they should buy your equipment and less on the price tag. "It is the peddler who quotes price first, and the salesman who quotes it last," Embry reminded the contractors.

Individualize your advertising to give it personality. Don't run factory mats alone over your logo. When you do that, you are advertising the man who sells to you, not yourself.

"A factory mat as a dealer advertisement is the most horrible waste of the dealer's money."

Use some of the factory material, he advised, but not all of it. Individualize your advertising and localize it. Put your picture in it, or something to identify you.

Tie in with national advertising, for it is very effective. But again, don't use a factory mat of the national ad. If you want to use it, take a picture of it and make it part of your advertisement. Tell your customers in effect, "You will see this advertisement in magazine. We sell it. Come in and see us."

Be truthful in your advertising. Don't try to be bigger than you are or it will boomerang on you.

You are not going to fool anyone with your advertising. They may get one impression from your advertisement, but a different one after visiting your store.

Tell your salesmen what you are doing in your advertising. They should know in advance what you are saying. Make them use your advertising by following up on the theme and reminding the customer of the messages he has seen. All your advertising helps the salesmen to get the order.

Set up an advertising budget and use it. The effectiveness of advertising comes through consistency and impact. You can't judge advertising on a day to day basis or even on a month to month basis. You can judge on a year to year basis, but short term judgments will fool you. Immediate sales are not an accurate criteria.

While direct mail may appear to be a much better media of advertising for the contractor than the

local newspaper, don't rule out the newspaper entirely. While it may appear, as a mass media, to be an expensive way to reach commercial prospects, you have a certain obligation to your community to support its efforts. Your customers like to see your advertisement there once in a while, indicating that you are a good solid firm.

Direct mail, while better for commercial prospects, can fool you. It must be done consistently and have impact to be effective. While a businessman buys his newspaper and wants to read what is in it—giving you a receptive audience, this is not so in direct mail. You are faced with a tough audience. He didn't ask for your message and he may very easily discard it without looking at it.

So in direct mail, keep the message simple and keep after it. Postcards, if used consistently, will do a job in getting your name recognized so that when your salesman calls, the prospect will at least have heard of you.

"If you advertise consistently and effectively, you will do a selling job," he affirmed, "even if you think there is an over supply and under demand."

SPECIALTY SELLING METHODS

New Tyler Guide Speeds Work of Figuring Commercial Refrigeration Installations

NILES, Mich.—A new, pocket-size, slide-rule-type "Balanced Systems Guide," designed to streamline the work normally involved in figuring a commercial refrigeration job, is now available from Tyler Refrigeration Corp.

Said by Tyler to be "a fast and foolproof method" of compiling B.t.u. requirements, line and condensing unit sizes, and all other data necessary when installing Tyler commercial refrigeration equipment, the time and labor-sav-

ing device reveals the answers immediately upon lining up figures in the proper "windows."

"Given the various case models and lengths, it is a simple matter to determine proper condensing unit size, case capacity requirements, and electrical requirements, on the face of the guide."

"On the reverse side, given the condensing unit model, suction line sizes, and length of runs are fed back to the user, along with the various B.t.u. capacities."

The guides are available at 25 cents each, from Tyler.

Cool First for First Church

BLOOMINGTON, Ind.—The First Christian Church here will become the city's first to install air conditioning, it was announced by Howard Anderson, pastor.



It's great to be a Carrier Room Air Conditioner Dealer!

Because Carrier Distributors are extra helpful!

When a Carrier Dealer wants to demonstrate the dozen ways to install a Carrier Room Air Conditioner, he really doesn't depend on this kind of support. But the distributor holds up his end in other ways. For example, he has a warehousing plan that will keep plenty of units within easy reach. More than that...

Carrier Distributors know air conditioning!

They grew up in the air conditioning business! Twenty-five of them have been associated with Carrier for more than twenty years...nearly sixty of them for ten years or more! They're the most experienced air conditioning distributors in the industry!

You can count on them for knowledgeable help, practical assistance, sound personal counsel. The Carrier Distributor will help you dig up prospects! He'll help you close sales! Another important sales-aid...

You have the Carrier name to sell!

Carrier doesn't make light bulbs, TV sets or phonograph records—just air conditioning! They know air conditioning best! And Carrier Room Air Conditioners show it! ...from the slim silhouette styling to the weather-armor cabinet...from the corrosion-proof coils to the exclusive cooling reservoir!

Learn more about the new 1955 Carrier Room Air Conditioner...and what it's like to be a Carrier Dealer. Write for the GIANT Room Air Conditioner issue of "Inside Carrier"—the monthly magazine that's meant for Carrier Dealers only!

Mail coupon for GIANT "Inside Carrier"!

Look what you get from the Carrier Distributor!

- **Financing and warehousing plans to ease your inventory problems!** Your distributor carries a complete line to supply you within hours instead of days.
- **Four retail financing plans designed to make payments painless!** Give a prospect up to 36 months to pay. You can even sell him with no down payment in some cases!
- **Advertising and promotional plans custom-built to your needs!** Get the personal attention of a trained advertising man plus a special "Starter Package" to begin selling as a Carrier Dealer!

Look at the products you have to sell!

The Carrier Room Air Conditioner illustrated below has universal appeal! Carrier was first with "multi-mounting." You can install the new 1955 Carrier almost flush with the sill; you can install it in basement, basement, wall or even through a transom!



AIR CONDITIONING
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INDUSTRIAL HEATING

CARRIER CORPORATION, 310 S. Geddes Street, Syracuse, New York

I want that free GIANT Room Air Conditioner issue of "Inside Carrier" and the name of my nearest Carrier Distributor.

I'd also be interested in finding out more about:

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What's New

When requesting further information on new products, please use "Information Center" form.

Automotive Air Conditioner Sells for About \$300



KEY NO. E-111

DALLAS—A "low priced" refrigerated automotive air conditioner, selling for around \$300 plus installation, has been announced by Frigikar Corp. located here.

The passenger car unit bears the trade name "Frigiking," while the adaptation for trucks and truck-tractors is labeled "Frigikab," according to Bert J. Mitchell, Frigikar president.

At the same time, he announced model improvements in the forthcoming 1955 Frigikar luxury-car air conditioner. Frigikar already is nationally distributed, having

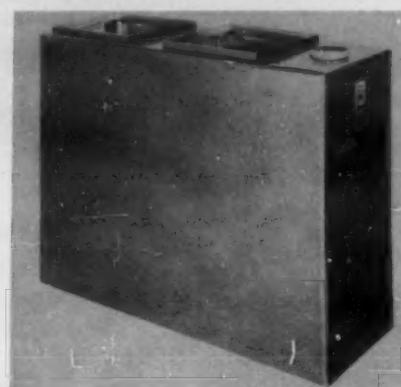
been in production since 1949, the company noted.

"Both Frigiking and Frigikab, with attractive under-dash housings that contain the evaporator, blower-fan, thermostat, and air-direction louvers, automatically hold in-car or in-cab temperatures in the 70° comfort zone," it was explained.

"Up to 365 cu. ft. of refrigerated air per minute are delivered for comfort at low or high speeds, in 100°-plus weather, without detracting from engine efficiency or increasing battery strain, the company states.

"Under the hood are the same heavy-duty compressor, condenser, receiver, drier, and solenoid valve components found in the luxury-car air conditioners. Units are easily and economically installed and transferred from one car or truck to another, with upkeep practically nil. Frigiking is even practical for convertibles!"

Frigikar also announced the appointment of Hobbs Mfg. Co. as southwestern Frigikab distributors for Texas, New Mexico, Oklahoma, and Kansas.



Winter Air Conditioner Is Factory Assembled

KEY NO. E-112

ELYRIA, Ohio—A new, gas-fired, low-boy-style winter air conditioning unit designed for basement installation and available in eight sizes, ranging from 75,000 to 300,000 B.t.u. input, has been announced by Sunbeam Air Conditioner Div. of American Radiator & Standard Sanitary Corp.

This all-steel unit, designated as model GLA (gas low-boy assembled) is completely assembled and wired at the factory, and "Installation Tested" there by actual gas firing and operation of the blower and controls," the company pointed out.

Compact design permits shipment of the five smaller sizes, 75,000 through 175,000 B.t.u. input, in a single carton that readily passes through a standard width

doorway, according to the manufacturer.

The three larger sizes are factory assembled and wired but shipped with the blower section in a separate carton for easier handling at site of installation.

Engineered with "jet action" heating element and improved ribbon type burners, this Sunbeam model burns all gases—natural, mixed, liquefied petroleum, or LP-air. Blower is cushion mounted for quiet operation. Jacket is heavy-gauge steel finished in "Forge Red."



Glass-Lined Water Heater Aimed at Mass Market

KEY NO. E-113

LOS ANGELES—Aiming at tract developments and low cost housing business, Mission Appliance Corp. has introduced a new glass-lined water heater line priced to compete with conventional models.

Called "Diamondglas," the new model features a thick glass lining, an external flue to permit an uninterrupted coating of glass over the tank interior. Compact dimensions make it easy to install in basements and small closets.

Diamondglas is available in 40, 30, and 20-gal. sizes and will be available in a 50-gal. size.

Therm-Air Mfg. Offers Self-Contained Unit

KEY NO. E-114

HAWTHORNE, N. J.—A new self-contained commercial air conditioner, available in 2 and 3-ton sizes, has been introduced by Therm-Air Mfg. Co., here.

"Weather-trol" units are said to be unusually compact, and can be quickly and easily installed because all wiring and piping connections are brought through to the outside of the cabinet. No special equipment or tools are necessary.

Knock out openings are provided when outside air is used. A top discharge opening is provided for duct-type installations.

Units are equipped with a hermetically sealed cooling system and compressor. A three-position switch is furnished for fan off, fan only, and thermostat compressor operation.

Removable front lift panels provide easy accessibility.

"Trouble-free performance . . . makes satisfied customers for me," says Ernest W. Farr, Bell Refrig. Corp., Cleveland.

TO GET ON THE MOST PROFITABLE FACTORY-DEALER TEAM IN THE BUSINESS, TIE UP WITH

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- RESIDENTIAL YEAR-ROUND UNITS FOR GAS OR OIL
- ROOM AIR CONDITIONERS, 1/2, 1/3, 1/4, 1 H.P.
- PACKAGED HEAT PUMPS, RESIDENTIAL & COMMERCIAL

ARE YOU SURE YOU'VE NEVER HAD TROUBLE WITH OIL?

A recent survey of refrigeration failures and their causes showed that oil was blamed in less than 0.1% of the cases. Moisture, expansion valves and strainers were thought to be culprits almost 20% of the time. On the surface, this looks good for refrigeration oils. But before you cross oil off your list of possible causes of trouble, let's take another look.

If moisture causes a failure, it has to get into the system somehow. Sloppy handling of oil or improper purging can cause moisture problems. But so can inferior refrigeration oils that haven't been properly processed.

Strainers, expansion valves, and capillaries shouldn't really be listed as the cause of failure if they're clogged. The real culprit is the stuff that is passing through them. Here again, inferior refrigeration oils that form sludge or contain too much wax are often to blame.

The best way to avoid a lot of call-backs is to use Suniso . . . the refrigeration oil that is used and recommended by most refrigeration manufacturers. Controlled from crude to can by oilmen, Suniso always assures you of both uniformity and high quality . . . it eliminates all your oil problems.

Sold Everywhere by Leading Refrigeration Wholesalers

SUNISO ADVANTAGES • provides adequate lubrication at all temperatures encountered in service • possesses a high degree of stability • won't throw out wax deposits under low temperatures • has extremely low moisture content • resists formation of corrosive acids and carbon under service conditions • separates readily from refrigerant—won't react adversely

SUNISO
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A PRODUCT OF SUN OIL COMPANY

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

What's New or Current Literature Available

Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.

Products Advertised
(list name, page, and issue date)

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Company
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City	Zone..... State.....
Type of Business

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AIR CONDITIONING & REFRIGERATION NEWS
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450 W. FORT ST.

DETROIT 26, MICHIGAN

What's New (Con't)**Hussmann Walk-In Made Of Prefab Sections**

KEY NO. E-115

ST. LOUIS—A flexible new walk-in cooler which reportedly can be adapted to fit any requirement has been introduced by Hussmann Refrigerator Co.

Called the "EZ Cooler," it is built from mass produced prefabricated sections. They are so designed that any type or size cooler can be produced with the standard sections, according to the company.

"The EZ Cooler can be erected in a matter of hours. The sections are locked together by means of simple latches which are tightened with one wrench. No other tools are required . . . no sealing compounds . . . no joint cover strips. Hussmann furnishes the wrench.

"Inside partitions with doors may be set into the cooler at any point to provide individual rooms to suit the merchant's needs.

"Adjustable rails and/or shelves for holding stock are built-in according to specifications.

"Selling-display front sections with glass doors may also be included in the cooler. Doors come in units of three. Each opening has four adjustable wire shelves with price tag moulding and a drip pan below the bottom shelf. Fluorescent lights are used.

"A track port above the cooler door makes it possible to run a track from the delivery area directly into the cooler."

**Deflector Prevents Wall Streaks from Panel**

KEY NO. E-116

NEW YORK CITY—A space-saving, electrically operated, radiant glassheat baseboard panel has been introduced by Continental Radiant Glass Heating Corp.

New feature is hooded deflector incorporated in the frame, eliminating streaks on the wall. Panels are constructed of tempered glass fused with aluminum strips.

Infrared rays are projected by means of a metal reflector behind the glass. Units are completely safe even at the maximum temperature of 300° F. and no blistering or searing results from direct contact with the panel.

"Footlighter" units may be mounted end to end across the room and are ideal for use under picture window. Panels are zone controlled by thermostat.

Frame size is 9 in. high by 47½ in. long; glass size, 6 in. by 45 in. Capacity, 750 watts, 245 volts, a.c.-d.c.

Footlighter comes in neutral hammertone grey finish. May be painted to blend with any decor.

'Weather-Man' Control Has Remote Outside Bulb

KEY NO. E-117

WESTERN SPRINGS, Ill.—Maximum flexibility with simplified settings for adaptation to heating requirements of multiple occupancy buildings is a feature of a new "Weather-Man" control added to the line of "indoor-outdoor" heating controls made by Automatic Devices Co., Inc. of this city.

Control has a remote outside temperature sensitive bulb. The regulator case is installed indoors. Heat is controlled by a program dial which automatically controls heat input during the day, provides night set-back, and a morn-

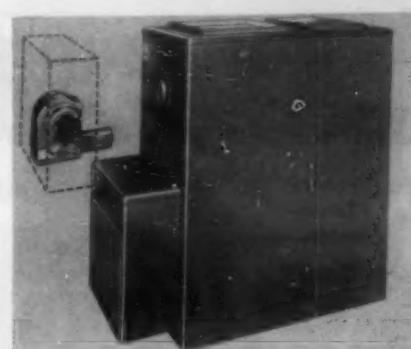
**Winter Air Conditioner Designed for Small Homes**

KEY NO. E-118

ELYRIA, Ohio—A new, compact, oil-fired winter air conditioning unit has been announced by the Sunbeam Air Conditioner Div., American Radiator & Standard Sanitary Corp.

Known as model 1307-OB, the unit is designed to meet the need of home builders for a complete winter air conditioner with sufficient heat output for small dwellings. It is said to offer various installation and maintenance economies resulting from all-new design.

One feature is a side flue opening, which makes it easier to install, wire, and service the burner and controls. The burner is a new Arcoflame model, engineered for compactness and fuel economy, and with hanger-type mounting for ease of installation and quiet per-



formance. It is test-operated at the factory to assure immediate start-up when assembled with the main heating element on the job, according to the company.

The factory-assembled main furnace unit measures slightly under 4 ft. in height, and is approximately 25 in. wide and 43 in. deep.

A jacket extension to conceal the burner is available as optional equipment. Unit is rated at 78,000 B.t.u. at bonnet and 67,000 B.t.u. at register.

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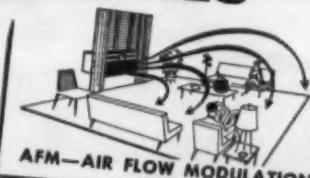
IN EFFICIENCY

Comparison of five leading brands of room air conditioners with M-345
MITCHELL 1955 ½ H.P. unit

	Composite Average of five leading brands	MITCHELL M-345
Air discharge in room	285 C.F.M.	335 C.F.M.
Air discharge over condenser	450 C.F.M.	650 C.F.M.
Face area of evaporator coil	240 sq. in.	308 sq. in.
Evaporator tube size	½ O.D.	½ O.D.
Face area of condenser coil	174 sq. in.	308 sq. in.
Amperage draw ASRE conditions	14.4 amps.	10.4 amps.
Amperage draw U.L. conditions	15 amps.	11.5 amps.
Power Factor	78%	90%
Sustained low voltage operation	103 volts	95 volts
Sustained high temperature operation	115° F.	145° F.
Velocity Control	None	Yes
Freon charge	18 ozs.	26 ozs.

IN SALES FEATURES**COOLS A ROOM IN LESS THAN 5 MINUTES**

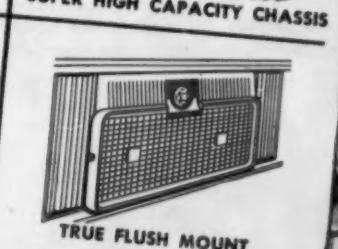
A flick of the AFM switch instantly gives 20% greater air velocity, 40% more volume, for a deep penetration of high velocity cooling.

**FROM CARTON TO COOLING IN 5 MINUTES**

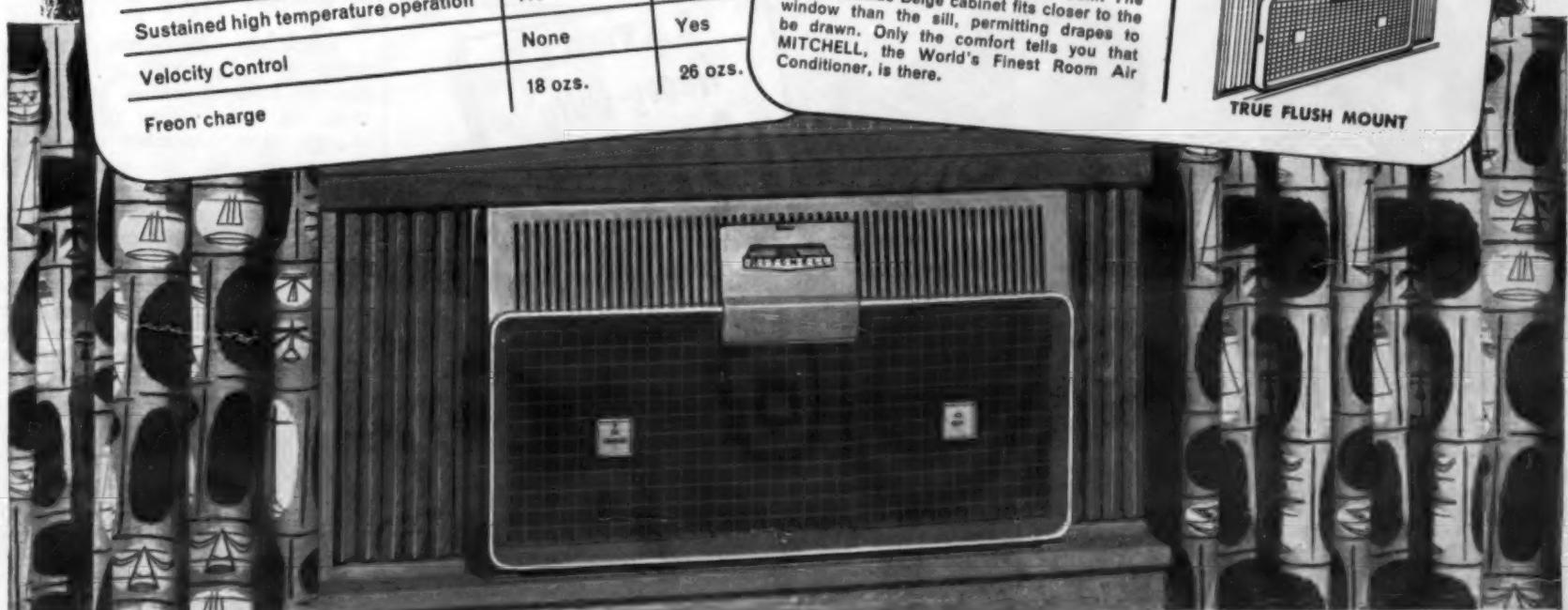
Installer merely opens carton . . . sets outer cabinet in the window . . . pulls out the flexible accordion pleated sides . . . slides in chassis, and air tight, dust tight installation is complete.

**DELIVERS MORE COOLING POWER THAN ANY OTHER UNIT**

The new MITCHELL Super High Capacity Chassis has 28% larger evaporator, 33% larger tubes, 34% larger fan capacity, 70% wider condenser and carries the seal of the United States Testing Co., Inc. for superior and consistent operating efficiency.

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MITCHELL takes no space in the room. The smart Cadillac Beige cabinet fits closer to the window than the sill, permitting drapes to be drawn. Only the comfort tells you that MITCHELL, the World's Finest Room Air Conditioner, is there.



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Lengthening Compressor Life

*Improper Application, System Contamination, Moisture, Time Account
For Most Problems, Training Good Maintenance Personnel Vital*

MINNEAPOLIS — Better than 10,000 hours of operation—equal to an automobile engine doing 300,000 miles—can be expected before a reciprocating compressor should require overhaul, according to Clayton B. Cramer, application engineer for Carrier Corp.

Discussing various causes that can shorten the life of a compressor, Cramer spoke at the ARI Educational Conference and 17th annual convention of the Refrigeration Service Engineers Society here.

"The current trend in refrigeration compressors demands that the machines be light in weight, occupy a minimum amount of space, be low in first cost, and give a satisfactory service life. In order to meet these demands, compressor manufacturers have been forced into compressor designs that embody higher speeds," Cramer said.

"In some instances these higher speeds do not involve great increases in piston speeds but merely higher rotating speeds which of course, will permit smaller diameters and shorter strokes, resulting in smaller machines.

"The use of higher rotating

speeds immediately suggests meticulous dynamic balancing. However, the use of high production automatic machinery for building the component parts of a compressor to very close tolerances, minimizes the difficulty of balancing the final assembly.

"The reciprocating compressors being built today are attaining standards of excellence never before achieved. Certainly the designers of these fine machines are entitled to a vote of appreciation by the individuals who are charged with the operation and maintenance of this machinery," Cramer suggested.

Emphasis Placed on Training

"Because more automatic protective features are being built into the compressors, more emphasis must be placed on training the operating personnel if they are to do a better job in extending the life of the compressor.

"Assume for a moment that the ultimate life of the compressor is dependent upon the intelligence and know-how of the customer to properly select, install, and maintain it. This discussion will be devoted primarily to four factors

that contribute to short life of a reciprocating compressor. These four items which account for a majority of compressor difficulties include application (or rather misapplication), system contamination, moisture, and time.

"Compression ratio is defined as the ratio of the absolute discharge pressure to the absolute suction pressure. The 'absolute' pressure is the gauge reading plus the atmospheric pressure (about 14.7 p.s.i.).

Problems of Too High Compression Ratio

"Many refrigerating compressor users do not always realize the difficulties which might ensue when attempting to operate compressors at too high a compression ratio. The compressor manufacturer will provide information regarding the maximum allowable compression ratio which must be seriously considered before the selection of a compressor can be made," Cramer said.

"The user is interested primarily in obtaining a certain evaporator temperature, but to obtain that temperature he must operate his compressor at a definite suction



Service & Supplies

pressure. If, for example, he is operating a low temperature unit, he may wish to operate the evaporator at -40° F. or -50° F. These low temperatures, of course, mean low suction pressures and high compression ratios.

"Thus as the suction pressure (and temperature) decreases, the compression ratio increases. It also follows that the higher compression ratios produce high discharge temperatures."

If the discharge temperature for a certain compressor in a "F-22" system is plotted, and assuming that the discharge pressure does not change as the suction pressure is reduced, there is a rapid change in the discharge temperature.

"For example, a suction pressure of 60 p.s.i.g. results in a discharge temperature of 151° F. while a suction pressure of 0 p.s.i.g. results in a discharge temperature of 220° F. Even though the saturated suction temperature reduces from 34° F. to -41° F., the discharge temperature rises 69° F.

Mfrs.' Recommendations Are Important

"Actually it is the high discharge temperatures that introduce difficulties in compressor operation. It is therefore, very important that the user abide by the manufacturer's recommendations with respect to allowable compression ratios and allowable discharge temperatures," Cramer emphasized.

"Excessive discharge temperature, while a result of high compression ratio can also be aggravated by high superheat in the suction gas. The discharge gas temperature should not exceed the flash point of the lubricating oil as operation in excess of this value will bring about a rapid breakdown of the oil which, in combination with other contaminants, will contribute largely to sludging and high acidity of the oil. Conditions such as this have a very marked effect on the life of a compressor.

"Keeping the discharge temperature under 275° F. at the compressor shut-off valve will usually fulfill this requirement.

"Superheating the suction gas a given number of degrees will result in a greater increase in discharge temperature. In the example at zero p.s.i.g. the discharge temperature is 220° F. when the compressor suction is saturated. However, the discharge temperature increases to 260° F. when the suction gas is superheated only 25° F.

"Since the discharge temperatures are measured at the discharge shut-off valve, it follows that the temperature of the discharge valve assembly inside the compressor will be considerably higher.

"The superheat in a suction gas should be kept to a minimum when operating at high compression ratios. In some cases it may be advisable to insulate the suction line from the evaporator to the compressor. The use of a liquid-suction heat exchanger should be avoided in systems where high discharge temperatures are involved.

"Remember that the manufacturer's recommendations are provided to promote long compressor life and over-all customer satisfaction. Disregard for such recommendations is an invitation to dissatisfaction.

Too High Operating Speeds Will Cut Unit Life

"The operating speed of a compressor must be consistent with the recommendation provided by

the manufacturer. Operating speeds above the design value will reduce the life of the compressor. A modern high-speed compressor cannot be expected to give a satisfactory life unless an effort is made to prevent overspeeding," he cautioned.

"The lubricating oil in a refrigeration compressor has an affinity for 'Freons' and 'Freon-12' in particular can be absorbed in large quantities by the oil. A mixture of 'Freon-12' and oil will reduce the viscosity of oil in much the same manner as pouring gasoline in a lubricating oil. As large quantities of refrigerant are added to the lubricating oil, the viscosity is greatly diminished and lower viscosity means less lubricating value.

"There is a certain quantity of refrigerant in the oil at all times but during normal operating conditions this amount does not appreciably change the lubricating value of the oil.

Oil Absorbs Refrigerant

"Following prolonged shutdown periods, however, large quantities of refrigerant may be absorbed by the oil and result in an extremely low viscosity and violent foaming of the crankcase on start up. Compressor manufacturers have recognized this phenomenon and have incorporated into their design features which minimize the effects of crankcase dilution. It is also important that the application of the compressor consider various external means for minimizing the effects of crankcase dilution.

"It is a well established fact that lubricating oil will absorb less refrigerant at higher crankcase temperatures and will also absorb less refrigerant when the crankcase pressure is low.

"In view of the above, any device that is used to keep the oil at an elevated temperature or keep the crankcase at a low pressure, will go a long way towards minimizing oil dilution," Cramer declared.

"A compressor should not be loaded to a capacity that greatly exceeds rated horsepower. If, for example, a compressor is designed for 1,750 r.p.m. and is nominally rated at 15 hp., it is possible by an improper choice of refrigerant to greatly overload the compressor at this speed.

"If the compressor meets its horsepower rating, using 'Freon-12' at air conditioning level, the introduction of 'Freon-22' into this system would seriously overload the compressor at this particular speed. Most manufacturers will tolerate an overload of 20%. However, the use of 'Freon-22' requires lower compressor speeds to prevent overloading and to obtain maximum compressor life.

"The life of any compressor can be very seriously reduced by the introduction of abrasive materials that are normally found in refrigerant systems. Too frequently the compressor becomes a 'garbage collection agency' at the expense of compressor life.

Oxide Scale Contaminant

"This difficulty is most pronounced on a new system which is being started for the first time. Perhaps the most vicious offender with respect to system contamination is the oxide scale found on the inside of steel and copper tubes. Much of this scale is produced as a result of heating joints at the time the joints are soldered or welded together.

"Care must be exercised in making a pipe joint to prevent scale

(Continued on next page)

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Why Do Compressors Fail?--

(Continued from preceding page) from forming. There is also a generous quantity of mill scale in iron pipe which will be flushed into the compressor by the flowing refrigerant during the early stages of operation.

"Another well known contaminant in a refrigerant system is pipe joint compound and soldering or welding flux. These materials provide an abrasive reaction as well as a chemical reaction. While iron scale is usually formed in rather large particle sizes, it is very brittle and as it is rolled and tumbled through the connecting pipe line, it breaks up into very small pieces which will usually pass through even the best suction screen."

"Frequently the particle size is in the order of .001 in. to .003 in. and will have no difficulty passing through a 100 mesh screen," Cramer said.

Oil Circulates Contamination

"When system contamination is permitted to enter the refrigerant compressor, it very quickly becomes mixed with the lubricating oil and, due to the fine particle size, proceeds to circulate in the lubricating oil system."

"Inasmuch as most modern refrigerating compressors are equipped with forced feed lubrication which supplies oil under pressure to each connecting rod bearing, particles of contamination in the oil become imbedded in the soft metallic surface of the connecting rod bearing, where it accelerates the wear on the crankshaft journal."

"Crankshafts are sometimes worn beyond usable limits within a very short operating period while the bearings show no measurable wear."

"The appearance of a badly contaminated connecting rod bearing resembles the surface of fine emery cloth and has about the same effect on a crankshaft journal."

"System contamination will discolor the lubricating oil, which gives operating personnel a very vital clue to impending bearing difficulty. If the lubricating oil in

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Turn to "What's New" Page for useful information on new products

a compressor is found to be discolored after a short operating period, it should be removed and examined for metallic particles and then replaced with clean oil. If metallic contamination is found, the connecting rod bearings should be removed and examined for metallic particles. The bearings should be replaced if contaminated."

"The best protection against contaminating a compressor is to follow the manufacturer's recommendation with respect to the inclusion of a special filter within the gas suction strainer."

"The manufacturer of a compressor usually does not install the special filter at the factory. Naturally such a filter will impose a pressure drop which will become greater as the filter loads with contamination. This, of course, will reduce the compressor capacity and therefore should not be allowed to remain in the suction strainer any longer than is necessary and should be examined at the end of about 50 hours of operation."

"If found to be clean it can be left out, otherwise, it should be cleaned and replaced in the suction strainer for another short period," Cramer advised.

How Moisture Enters System

"Infiltration of moisture into a 'Freon' system can become extremely troublesome. A meticulous effort to prevent moisture from contaminating a refrigerant system is highly desirable and the end results will justify the effort. Moisture can find its way into a refrigerant system in a number of ways, the best known of which is residual moisture trapped in the system during construction. Moisture can also enter the system with the refrigerant during the initial charge and can likewise be present in the lubricating oil used in the compressor crankcase."

"Due to the presence of lubricating oil in the compressor discharge and gas passages, a chemical breakdown of this oil due to excessive operating discharge temperatures can result which may cause formation of moisture. In the case of a hermetic compressor, a burn-out of the motor windings, can result in a large quantity of moisture."

(To Be Continued)

Institutions everywhere are turning to the "P-H" Line of "Lifetime" REFRIGERATORS IN

PORCELAIN ENAMEL OR STAINLESS STEEL FINISH

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(Illustrated) 6-DOOR PASS-THRU REFRIGERATOR—also available in 9 and 12 door models—adjustable shelf racks or tray slides.



8 FT. DRY BEVERAGE COOLER, self-contained model illustrated . . . six other models available in 50 in. to 10 ft. sizes, remote or self-contained.

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Supermarket Doubles As Display Room for Equipment Dealer

ST. LOUIS—There are very few commercial refrigeration display rooms in the country like that operated by Miller's Service, Inc. located here.

Miller's is a full-fledged supermarket doing a \$15,000 a week business.

It is the theory of Herbert J. Miller, Jr., who operates the Frigidaire and Warren Cooler distributorship with his brother and



father, that if he can take his prospects to see his equipment in action, he will have to do less talking. The equipment will practically sell itself.

Called the Northway Market, the business is located in the same building as Miller's shop and offices. Miller owns the building and leases the market to Tony Licota, who operates the food business.

Miller, however, equips the market completely and arranges the layout to show off his cases and coolers to best advantage. He also installed the 10-ton Frigidaire air conditioning system that keeps the store comfortable.

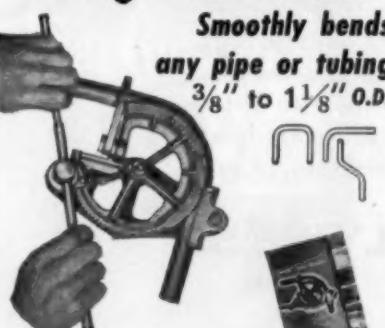
Thus, at any time he desires, Miller can take his prospects into the store, show them the equipment in action, and give them a fine idea of how the equipment will perform and look in their own stores.

Because he is using the store as his own display room, Miller insists that Licota keep the store spotlessly clean at all times, so that it will be a good example of a model operation.

The floor above the store Miller has divided into professional offices which he also leases out. He air conditions this floor with a 15-ton

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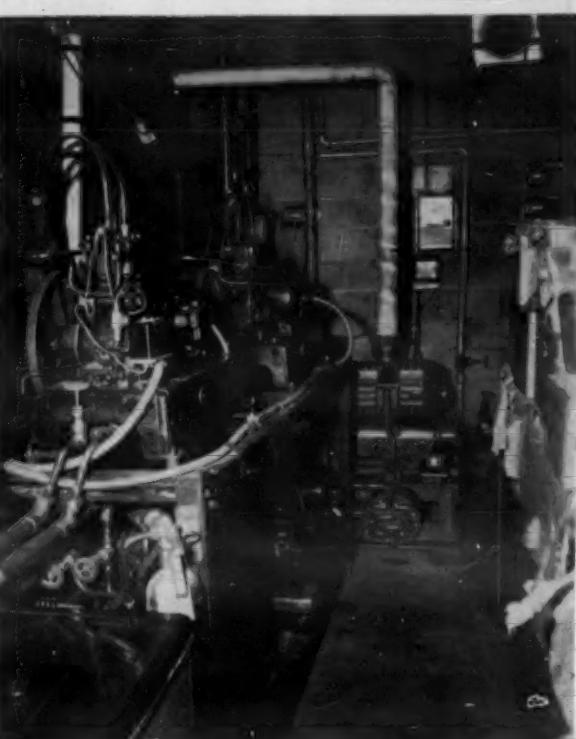
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Commercial Refrigeration

AIR CONDITIONING and refrigeration compressors are compactly installed in a corner of the market's back room. The air conditioning equipment serves not only the store but also professional offices on the second floor.



THIS OPERATING SUPERMARKET is the commercial refrigeration showroom for Herbert J. Miller of Miller's Service, Inc., St. Louis, shown here at right checking a vegetable display with Tony Licota, who runs the food business.

system and uses it to demonstrate how he can put heat and air conditioning through the same ductwork for skeptical air conditioning prospects.

An atmospheric tower on the roof serves both the air conditioning systems and the refrigeration condensing units for the store equipment.

HEAT-X INTERCHANGERS WITH INNER-FIN... ASSURE...

MAXIMUM SUBCOOLING

MINIMUM PRESSURE DROP

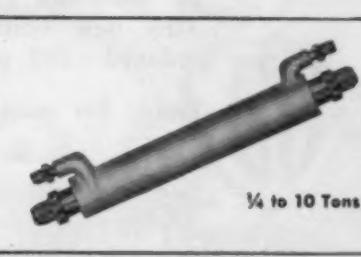


Heat-X Interchangers give you "most" where it's needed . . . maximum subcooling; and, "least" where it's needed . . . minimum pressure drop. Highly efficient longitudinal suction line with Inner-Fin—Heat-X exclusive—makes these top usability results possible:

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- Sized to match condensing unit
- Straight-through suction connections

. . . and these Advantages:

- Eliminates Flash Gas
- Reduces Oil Troubles
- Improves Low Temperature Jobs



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Refrigeration Problems and their solution by Paul Reed

For Service and Installation Engineers



Paul Reed

Cleaning Air (2)

The most commonly used sizes of air filters are 16 by 20 in., 16 by 25 in., 20 by 20 in., and 20 by 25 in., in 1, 1½, and 2-in. thicknesses, although they are also made in many other dimensions and in other thicknesses. They are usually placed in a duct, plenum chamber, or inlet air grille, ahead of the cooling coil.

On package air conditioners, the air filters are usually in one course, that is, one filter thick. On the larger installations the air filters may be in several courses. In these cases, filters 1 in. in thickness are used, and the course of filters on the inlet side only is changed rather than all of the filters. The other filters are moved forward and fresh filters installed on the outlet side. The filters on the inlet side become "loaded" more quickly than the others, so their useful life is shorter than those in the inner courses. This method of "rotating" filters usually results in

an over-all savings and more constant performance.

FILTER CAPACITY IN C.F.M.

The capacity in c.f.m. of air handled by an air filter depends upon several factors, so care should be taken in replacing filters of one make with another, or even with a filter of different style number made by the same manufacturer as the original filter.

The capacity in c.f.m. depends of course on the design of the filter and on the face area; the larger the filter the greater its capacity in c.f.m. The filter's capacity also depends upon the thickness of the filter, the velocity of the air through the filter, and the pressure drop through the filter. Filter manufacturers are able to supply these data and selection charts for use in selecting the proper filter under a given set of conditions, to clean a certain amount of air expressed in c.f.m.

PRESSURE DROP ACROSS A FILTER

Manufacturers' data is obvi-

ously based on new, clean filters. As they pick up dirt, lint, etc., their efficiency gradually decreases, and the pressure drop through the filter increases. The filter continues to be effective until the pressure drop becomes so great that it begins to materially affect the amount of air in c.f.m. passing through the filter. This is the point at which the filter should be replaced or cleaned.

Pressure drop across the filter is very small as compared with pressure drop in refrigerant lines. Instead of being measured in p.s.i., air pressure drop through an air filter is measured in inches of water; 1 in. of water being roughly equivalent to .037 p.s.i.

When new air filters have an air pressure drop of about 1/10 of an inch or less of water pressure per inch of thickness depending upon the design of the filter. When a filter becomes so dirty that its pressure drop is about three times its pressure drop when new, it is time to change the filter, or clean it, if it is the cleanable type.

Pressure drop across a filter or

bank of filters may be measured by a U tube open at both ends, with one end open to the air on one side of the filter and the other end open to the air on the other side of the filter. The difference in water level in inches of the water in the U tube is a measure of the pressure drop across the filter. Liquids less subject to evaporation than water, such as a light oil, may be used in the U tube instead of water, but the scale can be graduated in inches of water.

One 2-in. filter, or two layers of filters 1-in. thick having a pressure drop of about .20 (1/5) of an inch of water or slightly less, will, when new, have a capacity of about 300 c.f.m. per sq. ft. of face area, based on an air velocity of about 300 f.p.m. Thus an installation circulating 3,000 c.f.m. of air would require about 10 sq. ft. of filter area. Two 16 by 20 in. and two 20 by 20-in. filters 2-in. thick could be used, as they would give a face area of about 10 sq. ft.

(These are only rough averages for purposes of illustration. The manufacturers' data should be consulted when selecting filters.)

FILTERS IN BANKS

On this installation, the four filters would preferably be placed in a flat bank, two filters high and two filters wide, if the cross-sectional area of the duct, plenum, or inlet air opening in which the filters were to be placed was as much as 10 sq. ft.

However, on some installations, the cross-sectional area of the available filter location is insufficient to place the filters in a flat bank. In such cases, the filters are often placed in V form. Thus the four filters above referred to could be placed in the form of a V, having a face area of 10 sq. ft., even though the cross-sectional area was much less than 10 sq. ft., say 8 sq. ft. for example. The depth of such a V-shaped filter bank would be greater than that of a flat bank, and this would have to be taken into consideration.

INSTALLATION AND MAINTENANCE

Care must be taken that the filters fit snugly in their frames, so that no air can bypass the filter. Access doors must also be tight; if necessary, tape around the edges to insure tightness.

Also, be sure that there is sufficient room between the filter access door and an adjacent wall or other object, so that the filters can be replaced without bending them. Most service and maintenance men have seen jobs that violated this simple, obvious rule.

Fresh air inlets are often equipped with separate filters, particularly in neighborhoods in which there is a heavy concentration of soot, dust, leaves, or pollen. Do not forget to protect the filters against rain, by means of louvers or other form of eliminator.

Replacement of air filters on air conditioning systems can easily be overlooked by the user, who may call his service engineer because he cannot keep the rooms cool—when the trouble is due entirely to dirty air filters.

A regular schedule should be set up for the user to follow in changing the filters; or better still, this should be incorporated in a regular inspection and maintenance program.

Permanently installed pressure drop gauges of the U tube, manometer type are helpful, and can be marked in red to show the

maximum allowable pressure drop at which the filters should be changed or cleaned. The allowable pressure drop can be obtained from the manufacturer of the equipment, or from experience. In the absence of information from either of these sources, a maximum pressure drop across the filters, at which the filters should be changed or cleaned, of about three times the pressure drop across the filters when they are new or clean, may be used.

OTHER TYPES OF AIR FILTERS

In discussing air filters, we have been referring to the batt types that come complete with frames of either cardboard or metal, and which are removed in their entirety for replacement with new filters or for cleaning. There are, however, several other types of air filters.

One of these is a metal frame from which the filtering material may be removed and replaced with new material. This material sometimes comes in batts cut to size to fit the frames, or in rolls from which batts of various sizes may be cut.

Obviously, the advantage of this method is that only the filtering material is replaced, at presumably some savings in the over-all cost. In the smaller installations, the frames may have to be removed from the equipment and re-filled with new filtering material. In the larger filter banks, several feet high and wide, that are directly accessible, the batts of filtering material may be exchanged without removing the frames from the bank of filters.

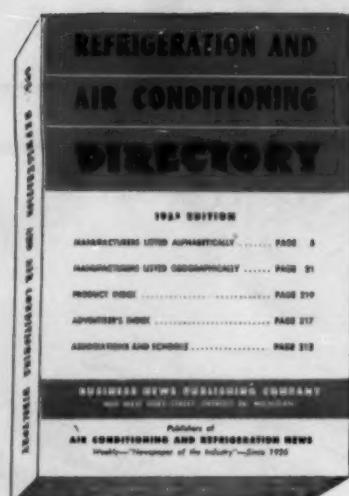
HEAVY LOADING OF FILTERS

In some installations, the amount of foreign matter in the air to be passed through the filter is tremendous, as compared to the relatively light duty imposed on filters in the ordinary comfort cooling installation. On such installations, the filters load up so quickly that the cost of new filters and the cost of changing them frequently or of cleaning the ordinary type of filter would be prohibitive.

One common example of this sort of installation is the cotton mill. The amount of lint in the air may cause the filters to load up in an hour or so. In other installations, the product being processed may throw off large quantities of dust, chaff, ink, or other fine particles or threadlike fibers. Such conditions often prevail in numerous kinds of industrial plants where air conditioning is used more for processing than for human comfort.

(To Be Continued)

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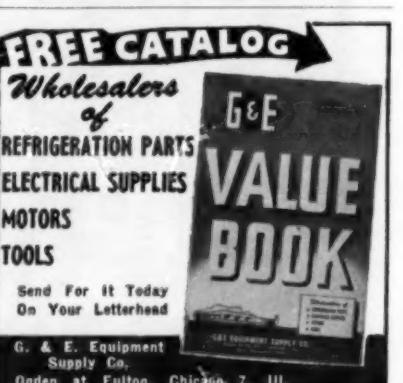
1-3-55

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NEW IDEAS in storage and convenience are incorporated into this Frigidaire 14.3-cu. ft. refrigerator-food freezer combination. The "picture window Hydrator" for fresh vegetable storage swings down out of the door. The 4.8-cu. ft. food freezer is below.



NEW 15-cu. ft. refrigerator-food freezer combination is equipped with two vertical doors. There is no divider between, and when they are open, full-width shelves roll out all of the way.



SUPER SERIES UNITS are designed primarily for casement windows and are offered in $\frac{1}{3}$ and $\frac{1}{2}$ -hp. sizes.

Frigidaire Introduces New Lines--

(Concluded from Page 1, Col. 5)
 $\frac{3}{4}$ and 1-hp. standard-sized models for regular double-hung windows.

Two new upright 12.5-cu. ft. food freezers are produced by the company. One is available in color, and with porcelain finish. Three full-width refrigerated shelves, a removable shelf, a roll-out basket and four full-width door shelves, plus a juice can rack, provide storage facilities for 438 lbs. of frozen food in the top model.

Ranges feature larger ovens and automatic operation in surface cooking units as well as the oven. Top models are equipped with a new "Heat-Minder" unit that is said to "watch over foods and never let them overheat. A thermostatic control automatically maintains the exact temperature selected for cooking."

2-DOOR WALL OVEN

Frigidaire's built-in cooking equipment includes an automatic two-door wall oven and fold-back surface cooking units.

In addition, the company is marketing chest-type food freezers, electric water heaters, an ironer, year-round household air conditioners, an electric dehumidifier, and a wide variety of commercial refrigeration and air conditioning equipment.

Mason M. Roberts, General Motors vice president and general manager of Frigidaire, said the new refrigerators, ranges, freezers, air conditioners, and built-in cooking equipment will be shown publicly for the first time during the winter furniture market in Chicago, opening today (Jan. 3). The new products also will be shown at the home builder's show in Chicago Jan. 16.

Fresh vegetable storage has been moved from the food compartment to the door in two refrigerator-freezer models. Vegetables now can be stored in a unique "picture window Hydrator" compartment in the door, Frigidaire noted. When the door is open, the transparent side of the unit permits the homemaker to inspect her supply of fresh produce at a glance.

"This unusual arrangement not only saves room in the food compartment but provides more convenient storage as well, since the

full-width unit is inset in the door at handy waist level," the company said. "The entire vegetable storage unit swings down into horizontal position for loading and unloading, or removal for cleaning.

LARGER CAPACITY FREEZERS
 Freezers are larger, too. For example, four of the new combination models have food freezers with capacities ranging from about 2 up to 4.8 cu. ft.

"The latter, which will hold nearly 170 lbs. of frozen food, is a freezer located in the lower part of an unusual 14.3-cu. ft. combination," it was pointed out. "This food freezer is equipped with two removable baskets, which roll out as easily as do the full-width roll-out shelves in the 9.5-cu. ft. food compartment above."

A new touch has also been added to ice trays. This year there is a tray that makes small half-size "cubelets." Like the standard trays, it has the rich golden finish and the finger-touch release.

Some new models boast a unique egg server on the door, Frigidaire said. This full-width unit, which is mounted at convenient height, tilts down out of the door. It will hold nearly two dozen eggs in individual protective pockets.

Among other food-keeping features in the 1955 Frigidaire models are controlled temperature butter storage, a cheese compartment, sliding drawers at waist level for eggs, meat, and snacks, left-over food containers, removable door shelves, and special frozen juice can storage facilities.

FLOWING COLD' CHILLS FOOD
 A new "flowing cold" refrigerating system that "bathes stored foods in a continual gentle flow of chilled air" is another highlight of top models. And there is also automatic defrosting.

Many Frigidaire refrigerators are finished in "Stratford" yellow, "Sherwood" green, or white to match electric ranges, food freezers, automatic washers, and dryers. All have porcelain finished food compartments, but many are available with colored porcelain exteriors as well.

Newly-styled room air conditioners, designed to meet all window requirements and incorporating

new engineering features, make up Frigidaire's 1955 line, described as "the most complete and flexible in our 26-year history of producing room air conditioners."

There are four models in two series, the "Super" and the "Deluxe-Twin." The Super series models are offered in $\frac{1}{3}$ and $\frac{1}{2}$ -hp. capacities and can be installed in either casement or double-hung windows. They are made to fit a casement window opening only 14 $\frac{3}{4}$ in. wide by 10 $\frac{1}{8}$ in. high, "thus making casement window installation extremely simple," it was stated.

The Deluxe series consists of $\frac{3}{4}$ and 1-hp. models that feature two separate cooling systems.

"These two systems serve the user with a wide range of cooling," the company said. "On moderately warm days only one system is required and on really hot days, both combine to keep temperature and humidity at a comfortable level."

ROOM AIR CONDITIONERS MORE COMPACT

Reportedly more compact than previous models of the same capacity, the Deluxe twin-powered units are 26 in. wide and 13 $\frac{1}{8}$ in. high. All units bear the same family resemblance in color and styling.

Air distribution is controlled by means of adjustable grilles at the front. Outside air may be brought into the room through the unit. Simple controls are concealed behind a flip-open panel below the air delivery grille.

All units can be installed in a window flush with the drapes or in a variable balanced mounting position.

In addition to the new heat-minding device on surface cooking units, the range line features a new "extra high-speed surface cooking unit that reaches full heat in a matter of seconds, then automatically switches to the selected cooking heat."

When the deep-well cooker on the ranges is used for deep fat

frying, a thermostat automatically keeps the fat at the correct temperature to fry without smoking, according to Frigidaire. The temperature can be adjusted. The company added: "If you are doing a lot of surface cooking and need another unit, simply remove the utensil and pull up the extra heating unit from the well."

"There are many other advantages incorporated into these ranges. For example, top line models are equipped with a new non-slide griddle that fits snugly onto the surface units when in use. Ovens are larger too, a full 17 in. wide, and have 15% more shelf area. They are easy to clean because of the rounded corners and porcelain finish."

Forty, 30, and 21-in. ranges are produced. Some have cooking tops

with surface units grouped at the side; others have divided tops. Top models come in yellow, green, or white porcelain.

COOKING UNITS FOLD BACK

Sectional surface cooking units that fold back out of the way when not in use and an automatic wall oven with two vertical doors were termed "a new concept in built-in equipment which opens new avenues of carefree cooking."

Styled in matching stainless steel finish, the surface units and oven "can be installed quickly and with comparatively little expense," according to H. F. Lehman, the firm's general sales manager.

"An innovation in controls is incorporated into the new surface unit sections. A tapered fingertip control slides up and down in a vertical panel on either end of the back panel. The entire heat scale is illuminated and an indicator shows at a glance which one of five heats is in use."

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PATENTS

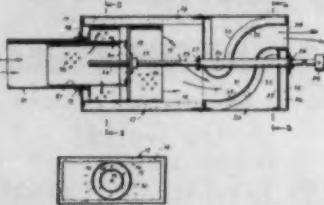
**Week of August 31
(Continued)**

2,687,626. HEAT EXCHANGER HAVING OPEN-SIDED BORE SUPERIMPOSED ON CLOSED BORE. Sterling S. Bartlowe, Adrian, Mich., assignor to Bohn Aluminum & Brass Corp., Detroit, Mich., a corporation of Michigan. Application Feb. 16, 1952, Serial No. 271,937. 7 Claims. (Cl. 62—126.)



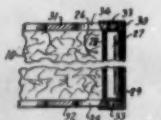
1. A heat exchanger comprising a unitary strip of resilient material formed with a closed bore adapted to carry fluid and with an open-sided bore, an insulated heating element mounted in the open-sided bore, there being a good thermal path between the walls of the open-sided bore and heating element.

2,687,745. HIGH-PRESSURE DIFFUSER. Peter A. Argentieri, Tuckahoe, N. Y., assignor to Connor Engineering Corp., New York, N. Y., a corporation of New York. Application Sept. 22, 1950, Serial No. 186,154. 6 Claims. (Cl. 137—614.11.)



4. An outlet device for connection to the opening of an air duct comprising, a canning having inlet and outlet openings, a sleeve slidable within one of said openings, said sleeve being provided with a series of perforations over the air-distributing area of the walls of the sleeve, a cylinder within said casing surrounding the sleeve and in spaced relation thereto, the walls of the cylinder being provided with a series of perforations disposed over the air-distributing area thereof, a throttling disk closing one end of said sleeve and fixed thereto, said throttling disk being slidable within said cylinder to define the air-distributing area thereof, whereby the cross-sectional area of said cylinder and said sleeve available for passage of air may be varied simultaneously, an expansion and silencing chamber located at the outlet of the casing co-operating with the cylinder, sleeve and disk in reducing noise created because of throttling effect secured by adjustment of said sleeve and disk attached thereto, said chamber having a sinuous passage through which the air flow passes, said passage being lined with a sound-deadening material, which material extends into and lines the interior of the casing around the cylinder therein.

2,687,751. FRAME FOR AIR FILTERS. Fred T. Sens, Newark, Ohio, assignor to Owens-Corning Fiberglas Corp., a corporation of Delaware. Application Sept. 27, 1951, Serial No. 246,531. 3 Claims. (Cl. 183—49.)



1. An air filter comprising a generally rectilinear mass of fibers, a frame encompassing said mass and comprising a pair of spaced parallel grilles located on opposite main faces of said mass of fibers, a transversely extending side wall located between the inner faces of said grilles about the edges thereof to space the grilles apart, and a U-shaped channel of sheet material extending along each of the four sides of said filter and received over and enclosing said side wall and the edges of both of said grilles, the flanges of said U-shaped channel being adhered to said grilles and the web of said channel being adhered to said side wall.

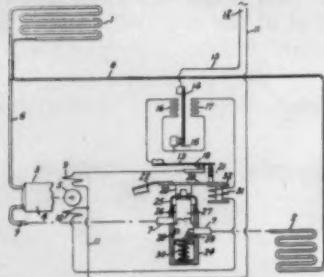
2,687,876. PLATE TYPE HEAT EXCHANGER. Robert Pontus Larsson Hytte,

Lund, Sweden, assignor to Aktiebolaget Separator, Stockholm, Sweden, a corporation of Sweden. Application Oct. 17, 1951, Serial No. 251,689. 6 Claims. (Cl. 257—345.)



1. A plate heat exchanger comprising a series of spaced heat exchange plates forming flow courses, corrugations in the plates forming adjacent flow spaces of substantially triangular sections in the flow courses between the plates, each of said spaces communicating with an adjacent space through a passage having a minimum cross-sectional area bounded on one side by a flat wall of one plate and on the other side by a wall of another plate, said flat wall forming a wall of each of two intercommunicating adjacent triangular flow spaces on each side of said one plate, said wall of the other plate being broken to form a corrugation of said last plate where the corrugation line limits the minimum cross-sectional area of said passage, the corrugations of each plate extending generally transversely thereof and being offset, longitudinally of the plates, with respect to the corrugations of the adjacent plates, the walls forming the corrugations of each plate being non-parallel to the walls forming the adjacent plates.

2,688,056. HUMIDISTAT. Charles F. Kettner and Frank J. Roseland, Detroit, Mich., assignors to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application Oct. 24, 1951, Serial No. 252,902. 3 Claims. (Cl. 200—61.06.)



2. In a hygrostat, a base, an element mounted for relative movement with respect to said base, a member associated with said element and adjustably mounted on said base, a stack of paper discs mounted on said element and bearing against the same and against the member, spring loading means to load the stack with prescribed pressure, means for adjusting the spring loading means, adjustment of the adjustably mounted member moving the spring loaded stack as a whole with respect to the base for calibration purposes, and switching means fixedly mounted on said base and engageable with the element to be actuated by movement of the same.

2,688,113. MOTOR CONTROLLING MEANS. Charles S. Grimshaw, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application April 20, 1953, Serial No. 349,769. 15 Claims. (Cl. 312—221.)

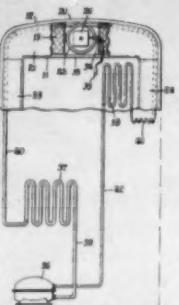


1. The combination with a refrigerating unit including a motor having a starting winding circuit of means for controlling said starting winding circuit comprising: a pair of starting contacts in said starting winding circuit, said starting contacts being biased closed, an arm biased for opening said starting contacts, and means cooperating with said arm in ac-

cordance with operation of said refrigerating unit, said means restraining said arm from opening said starting contacts when said refrigerating unit is idle, said means being ineffective for restraining said arm when said unit motor attains a predetermined speed.

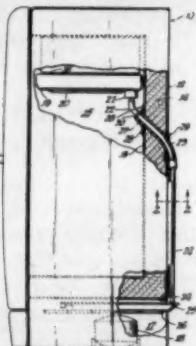
Week of September 7

2,688,234. HEATING DEVICE FOR REFRIGERATOR TEMPERATURE CONTROLS. Charles D. Harris, Evansville, Ind., assignor to International Harvester Co., a corporation of New Jersey. Application April 12, 1952, Serial No. 281,985. 10 Claims. (Cl. 62—4.)



1. In a refrigerated cabinet having an inner liner spaced within an outer shell with insulating material disposed therebetween, a refrigeration system comprising a compressor, condenser, evaporator and metering device, said evaporator being located within a storage chamber enclosed by said inner liner, a temperature control unit located in close proximity to said storage chamber for controlling the operation of said compressor, a tube connecting said condenser to said metering device, said tube having a portion located in heat exchange relation to said temperature control unit whereby the unit will be maintained at a temperature above the dew point of the surrounding air.

2,688,235. DEFROST WATER DISPOSAL SYSTEM. Eric H. Schwenker, Evansville, Ind., assignor to International Harvester Co., a corporation of New Jersey. Application April 7, 1953, Serial No. 347,333. 6 Claims. (Cl. 62—103.)



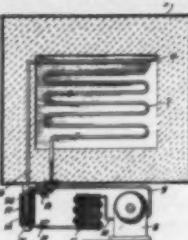
1. In a refrigerator having a defrostable evaporator positioned within a food storage compartment thereof, means for disposing of the defrost water dripping from said evaporator, said means comprising a drip tray positioned within said food storage compartment below said evaporator, a drain tube depending from the lower surface of said drip tray, a length of rigid tubing mounted to extend through the rear wall of said refrigerator from the interior thereof in a generally sloping downward direction to the exterior thereof, a water pan removably mounted below said food storage compartment and having a portion thereof extending rearwardly of said rear wall of said refrigerator, a length of flexible tubing removably positioned through said drain tube, the other end of said length of flexible tubing connected to said drain tube, the other end of said length of flexible tubing positioned over said portion of said water pan extending rearwardly of said rear wall of said refrigerator.

2,688,236. ICE CUBE TRAY COMBINATION. Lloyd G. Copeman, Metamora, Mich., assignor to Copeman Laboratories Co., Flint, Mich., a company of Michigan. Application Nov. 24, 1950, Serial No. 274,224. 8 Claims. (Cl. 62—108.5.)



1. An ice tray and grid combination comprising a tray of sheet material having sides inwardly dimpled at spaced intervals, and a flexible resilient separator grid to lie in said tray having separating walls extending across the tray in two directions, the separator walls extending in one direction being split vertically between the walls extending in the other direction and joined at the top by a flexible, stretchable element to permit sectional removal of said grid from an ice-filled tray.

2,688,237. EXPANSION DEVICE FOR REFRIGERATION UNITS. Carson H. Beane, Binghamton, N. Y., assignor to The Brower-Titchener Corp., Cortland, N. Y., a corporation of New York. Application Aug. 13, 1951, Serial No. 241,650. 6 Claims. (Cl. 62—117.55.)

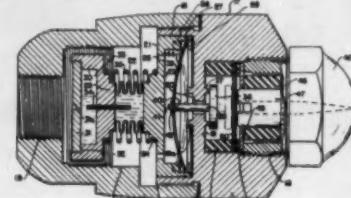


1. In a refrigeration assembly in combination an evaporator embracing a hollow fluid-conducting body having intake and outlet ends, a motor-driven compressor having an inlet and an outlet, a condenser connected to the compressor outlet, a tube assembly provided with an intake and an outlet and presenting an outer unit having a projecting closed end

constituting an unobstructed mounting portion, the outlet of said assembly being connected to the compressor inlet, the inlet of said assembly being connected to the outlet end of said evaporator, an expansion device comprising a coil of tubing of small cross-sectional area and also having inlet and outlet ends, the former end being connected to the condenser, the outlet end of said coil extending into the intake end of said evaporator and the body of said coil embracing the exterior face of the mounting portion of the outer unit of said assembly and being slideable in telescopic relationship therewith to be detachably mounted thereon.

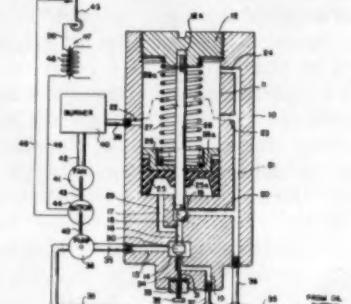
has a temperature substantially different from that of the handhole fitting, said screening means and said fitting being relatively arranged to form therebetween a clearance space which at a location adjacent said periphery is continuously open to the interior of said header.

2,688,332. VALVE. William L. Huntington, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application June 26, 1950, Serial No. 170,374. 8 Claims. (Cl. 137—494.)



1. In a snap-acting valve, the combination comprising a valve body formed of two generally cylindrical inter-engaging sections, the first of said sections having a valve seat intermediate its ends, a valve head on the opposite side of said valve seat from the second of said sections and cooperable with said valve seat, a stem on said valve head and extending through said valve seat, an aperture snap disc secured at its center to said stem, a liquid filled bellows having one of its ends loosely secured to the periphery of said disc, and a stationary cylinder partially filled with liquid secured to the other end of said bellows, a passage of small internal diameter extending through a wall of said cylinder with the ends thereof in contact with the liquid in said cylinder and bellows respectively.

2,688,337. DELAY ACTION VALVE. Paul F. Shivers, Edina, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Sept. 20, 1950, Serial No. 185,710. 10 Claims. (Cl. 137—494.)

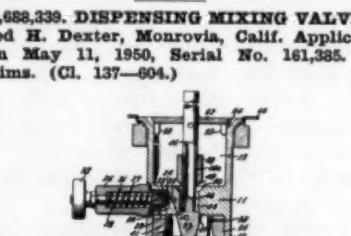


1. A valve comprising a hollow body, an inlet passage, an outlet passage spaced from said inlet passage, a return passage on the opposite side of said outlet passage from said inlet passage, pressure operable valving means in said body cooperable with said outlet and return passages to control fluid flow therethrough, means biasing said pressure operated means toward the inlet end of said body, a bypass passage between said inlet passage and the exterior of said body, a first bypass valve in said bypass passage, slip friction means including a rod frictionally engaged by said pressure operable means for normally holding said bypass valve open and for releasing said bypass valve to enable it to close upon initial movement of said pressure operable means toward said outlet passage and for opening said bypass valve upon initial return movement of said pressure operable means, and a second manually adjustable bypass valve in said inlet passage.

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2,688,339. DISPENSING MIXING VALVE. Fred H. Dexter, Monrovia, Calif. Application May 11, 1950, Serial No. 161,385. 8 Claims. (Cl. 137—604.)



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2,688,340. HEAT EXCHANGER HAND-PIPING. Christopher H. Davy, London, England, assignor to The Babcock & Wilcox Co., Rockleigh, N. J., a corporation of New Jersey. Application May 11, 1951, Serial No. 225,713. 5 Claims. Priority, application Great Britain, May 15, 1950. 5 Claims. (Cl. 122—360.)

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Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request to the purchasing officer under which the purchase is listed in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Ordnance Ammunition Center, Joliet, Ill.; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices.

Invitations for bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q," or, if numbered, the number will be followed by the letter "Q."

Description	Quantity	Invitation No.	Opening Date
Kansas City District, Corps of Engineers, U. S. Army, 10 E. 17th, Kansas City, Missouri		(ENG-23-028-55-44B)	4 Jan 55

Cyber Temperature Testing Job Facilities, Lake City Arsenal, Independence, Mo. Construction of masonry addition to bldg. No. 45, complete with grading and site preparation, walks, parking area and utilities, including special equipment to raise the temp. to plus 200° in certain areas and to reduce temp. to -120° in another area.

Department of the Army, Procurement Division, Bldg. 1406, Camp Kilmer, New Brunswick, New Jersey

Refrigerated display cases, various prepakaging tables, check-out stands, etc., for Commissary Sales Store, Camp Kilmer, New Brunswick, New Jersey.

Corps of Engineers, U. S. Army, Office of the District Engineer, Washington District, First and Douglas Sts., Washington, D. C. Mechanical Ventilation in barracks buildings at Bolling Air Force Base, Washington, D. C.

Installation of mechanical ventilation systems in existing barracks buildings, including interior work, carpentry work and painting in connection therewith and miscellaneous building changes.

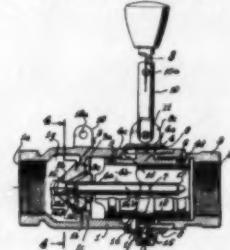
(Continued from preceding page)

said housing into syrup and mixing chambers, valve controlled inlet means for admitting carbonated water under pressure into said mixing chamber, said diaphragm being formed with an axially disposed aperture defining a communication between the said syrup and mixing chambers and a downwardly directed concentric annular flange, valve means movable between open and closed positions reciprocally disposed in said mixing chamber and responsive to the pressure of said carbonated water to open or close the said communication between the syrup and mixing chambers, discharge means from said mixing chamber, said syrup chamber having an opening to communicate with a source of syrup, and a second

valve means responsive to the position of said first valve means to open communication with said syrup supply when said first valve means is in closed position and to close said communication when said first valve is in open position, said second valve means comprising a valve plate positioned to control said opening and having a downwardly direct stem adapted to abut against said first valve means and to move cooperatively therewith.

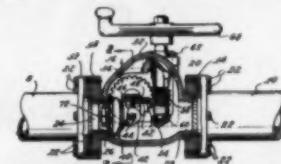
2,688,340. PRESSURE EQUALIZING VALVE WITH PIVOTALLY MOUNTED OPERATOR. Theodore A. Stehlin, Upland, Calif., assignor to St-West, Inc., Carson City, Nev., a corporation of Nevada. Application Jan. 13, 1949, Serial No. 70,706. 2 Claims. (Cl. 137—630.14.)

valve means responsive to the position of said first valve means to open communication with said syrup supply when said first valve means is in closed position and to close said communication when said first valve is in open position, said second valve means comprising a valve plate positioned to control said opening and having a downwardly direct stem adapted to abut against said first valve means and to move cooperatively therewith.



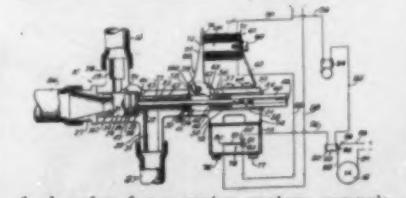
opening and an annular seat surrounding the opening adjacent an end of the casting; a valve actuating member coaxial with and axially shiftable within the casting, said actuating member having an axial tubular stem projecting therefrom through said opening; a valve member rotatable and axially slidable on said stem and normally engaging said seat in response to fluid pressure within said end of the casting, said valve member having an outer conical end and a passage extending from its forward to its rearward end, said actuating member having an end engageable with said valve member to unseat the latter; and a cracking valve rotatable in said tubular stem and adapted for axial movement therewith relative to said valve member, said cracking valve having a valve portion normally providing the apex of the conical end of the valve member and seating against the latter, said cracking valve, when shifted axially in one direction, permitting fluid flow through said passage of said valve member.

2,688,341. VALVE. Kenneth C. McBain and Donald Keith MacBain, Long Beach, Calif., assignors to Paul A. Dewhurst, Los Angeles, Calif. Application Jan. 7, 1950, Serial No. 137,354. 5 Claims. (Cl. 137—630.14.)



1. In a valve, a valve body having an apertured seat portion, a valve operating member movably supported by the valve body, a valve head having a seat engaging portion, said valve head having a passage therethrough, a cushioning valve movable relative to the valve head to open and close the passage, the cushioning valve being supported by the operating member and the valve head being supported by the cushioning valve, and a yielding device interposed between the valve head and the cushioning valve to yieldably hold the cushioning valve open, the valve head being engageable with its seat prior to movement of the cushioning valve to its closed position, the valve head and cushioning valve having a common direction of closing movement.

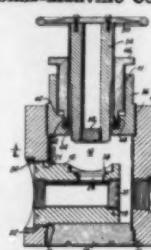
2,688,460. AUTOMATIC DRAIN VALVE. William F. Borgerd, Evansville, Ind., assignor to International Harvester Co.



1. A valve for a water system comprising a valve body having a valve chamber, said valve body provided with a drain

port which communicates with said valve chamber, a valve stem extending through said drain port, a valve member secured to one end of said valve stem which is adapted to open and close said port, a sleeve secured to the opposite end of said valve stem, a piston slidably received within said valve body, a trigger member for engaging said piston, a spring means interposed between said piston and said sleeve which forces said valve member to closed position when said trigger member engages said piston, a lever arm rigidly mounted to said trigger member, said lever arm formed of a magnetically attractive material whereby an electrical magnet is positionable in cooperation with said lever arm to control the operation of said trigger member, and spring means for forcing said valve member to open position when said trigger member is released.

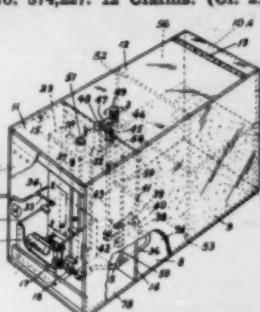
2,688,462. NONCORROSIVE VALVE. Ralph L. Barbehenn, Plainfield, N. J., assignor to Johns-Manville Corp., New York.



1. A valve comprising a tubular housing defining a chamber in its interior, a closure plug closing a first end of the housing in fluid-tight relationship therewith, said housing having first and second bores extending through its walls, said second bore serving as an outlet port for the chamber, an intake pipe mounted in said first bore in fluid-tight relationship with the housing and having its inner end extending into the chamber, means closing the inner end of said intake pipe against the passage of fluids, said intake pipe having a port extending through its side wall with a valve seat facing toward the second end of the housing, a valve stem having one end shaped to fit said valve seat complementally, means closing the second end of the housing against the passage of fluid and supporting the valve stem for adjustment

longitudinally of the housing with its said one end inside the chamber and in alignment with said valve seat for cooperation therewith, said intake pipe resting on said closure plug and being supported in part thereby against displacement and having means thereon cooperating with said closure plug to align said valve seat with said one end of said valve stem in their assembled relation.

2,688,667. FILTERED SPACE UNIT. Charles V. Bunkle, Detroit, Mich. Application Aug. 14, 1953, Serial No. 374,227. 12 Claims. (Cl. 219—40.)



1. In a device of the character described, in combination, a housing of non-conducting material, a partition in said housing dividing said housing into a liquid reservoir compartment and a second compartment, two additional partitions dividing said liquid reservoir compartment into a raw liquid sub-compartment, a filter sub-compartment and a purified liquid sub-compartment, filter means in said filter compartment, said two additional partitions having feed openings connecting said raw liquid sub-compartment to one side of said filter in said filter sub-compartment and connecting the opposite side of said filter and filter sub-compartment to said purified liquid sub-compartment, an electric vapor generator in said second compartment having means for passing an electric current through conductive filtered liquid in said generator, a tray in said second smaller compartment for supplying conductive filtered liquid in said generator, a tray in said second smaller compartment for supplying conductive filtered liquid to said generator, and means for controlling the flow of filtered liquid from said purified liquid sub-compartment to said tray.

REFRIGERATION AND AIR CONDITIONING ENGINEER

A progressive, rapidly-expanding manufacturer of packaged air conditioning units, located in the South, desires the services of an individual experienced in the design and development of residential air conditioning equipment. The man we want is one presently employed and desirous of advancing with a young organization. Write, giving details of experience and qualifications in first letter.

BOX A5129, AIR CONDITIONING & REFRIGERATION NEWS

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RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS AVAILABLE

ATTRACTIVE OPENING with Detroit jobber. Prefer younger man 25 to 40. Must have counter experience. Position offers liberal rewards with a real opportunity to learn and grow. Your opportunity to join a growing organization. LEE EQUIPMENT CO., 4721 Joy Rd., Detroit 4, Mich.

WANTED—MANUFACTURERS' representatives now contacting commercial refrigeration dealers in the following territories: Chicago, Atlanta, Detroit & Florida. Must be able to sell quality equipment: fast-growing line of special commercial refrigeration items of interest to established refrigeration dealers. Replies confidential. Write: Paul R. Stewart, C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

MIDWESTERN NATIONAL manufacturer of commercial refrigeration and air conditioning equipment requires an aggressive executive sales engineer to contact leading wholesalers and equipment manufacturers, also capable of developing new accounts. Ambitious man with the right educational and practical background and personality will find this a unique opportunity to grow with this company and to develop rapidly into a managerial position with commensurate rewards. In reply, please give resume of your qualifications, stating age, educational background, work experience, and past earnings. All replies held in strict confidence. BOX A5129, Air Conditioning & Refrigeration News.

FIELD ENGINEER: Technical graduate, 25 to 30 years of age with experience in refrigeration and air conditioning to call on manufacturers, wholesalers, and contractors after indoctrination and factory training program. Salary plus liberal bonus arrangement. Please give details of past and present employment and education in first letter. Your application will be kept confidential. Write BOX A5126, Air Conditioning & Refrigeration News.

ENGINEER—TO administer engineering functions and supervise design department of large, long-established manufacturer located in eastern section of country. Experience in design of refrigeration

cabinets preferred. Send resume of education, experience, and recent earnings. All replies treated in strict confidence. BOX A5127, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

NEW 5 or 10-ton packaged, York or equivalent, air conditioning unit, complete with automatic controls, cooling coil and heating coil. 220 v., 3 phase, 60 cycle. Reply to BOX A5128, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

75-TON York air conditioning equipment, consisting of York compressor, 75 h.p. Westinghouse motor and starter, blower with 7½ h.p. motor, circulating pump with 10 h.p. motor, shell tube condenser and miscellaneous parts—\$2,500.00. ACME ELECTRIC COMPANY, St. Louis 2, Missouri.

ATTENTION SERVICEMEN: Save 25 to 50% on your refrigeration parts. Send for our catalog of values today. Here is only one of our money saving offers. 1½" O.D. copper connections x 14½" overall vibration eliminators, \$4.65 each. Lot of 10, \$40.00 each. WALTER W. STARK REFRIGERATION SUPPLIES, 2833 Lincoln Avenue, Chicago 13, Illinois.

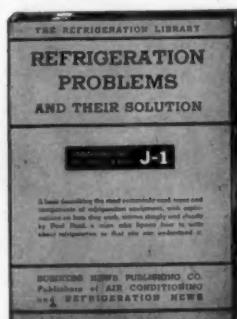
MISCELLANEOUS

"SEALED UNIT Rebuilding-Basic Tools & Methods"—an instructive copyrighted manual giving complete details on economically equipping your shop to handle hermetic rebuilding. Exclusive trade secrets unavailable elsewhere. Mail postcard for descriptive folder. H. W. CUSTER, P. O. Box 98, Center Line, Michigan.

SALES MEN'S BIG opportunity! Do you want a business of your own in the lucrative sales agency field? Send for Free Examination copy of "How to Become a Successful Manufacturers' Representative." Shows how you can start your own business right now—with no other investment but your own sales experience! Tells how to set up physical structure of a sales agency business—how to get lines to 10+ agencies that will help you get started—advice on sales techniques, compensation contracts, everything else you need to know. Write today for 10-day Free-Examination copy of "How to Become a Successful Manufacturers' Representative." If satisfied, remit \$4.95 plus postage; or return book, owe nothing. PRENTICE-HALL, INC., Dept. M-246, Englewood Cliffs, New Jersey.

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by PAUL REED



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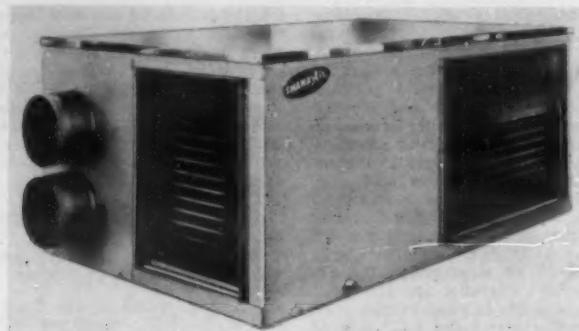
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1-3-55



Shana Air-Cooled Home Air Conditioner.

Shana Air-Cooled Home Units--

(Concluded from Page 1, Col. 3)
Heat oil or gas-fired winter air conditioners.

In addition to the new air-cooled unit for 1955, Shana is introducing two new special designs of 2, 3, and 5-ton air-cooled equipment and a new line of 2, 3, and 5-ton self-contained, water-cooled air conditioning systems.

"One of the new air-cooled models will have a complete outside condensing unit with remote coil, and the other air-cooled style is an inside unit to be used with a remote condenser only."

Shaffer said the company's air-cooled lines "are priced to sell at comparable prices of the existing water-cooled equipment."

The new self-contained 1½-ton air-cooled unit "may be placed on a roof and has outlets for four round supply ducts that can run outside and drop into the ceiling (use central return from hall to unit) and also has a damper in the plenum so that the air supply may be diverted to day-time or night-time quarters, or to all the rooms at once," it was explained.

It may also be installed in connection with a furnace or placed in an attic or utility room and connected to the existing duct system, the company said.

Among other features listed for the unit are: "Complete weather-proof cabinet for outdoor installa-

tion; compact and light weight (29 in. by 48 in. by 19¼ in.); low kilowatt input to compressor and, therefore, lower operating cost; unit is shipped complete with evaporator blower and condensing blower; unit operates at 125° ambient temperature; five-year warranty; standard size filters insure thorough cleansing of the air."

Also cited with the new Shana combination heating and cooling unit in a self-contained package, in capacities ranging from 85,000, 105,000, and 130,000 B.t.u. at the bonnet on the heating side, and in 2 and 3-ton capacities for the cooling side. These combination units are available in either oil or gas-fired models.

NARDA Meeting--

(Concluded from Page 1, Col. 5)
the morning session with the keynote address on "What's Ahead for the Dealer in 1955." Other morning-session speakers will discuss fair trade, "Real Selling Is Clean Selling," NARDA's standardized bookkeeping system, and group insurance.

A talk by George H. Meilinger, appliance sales manager of Westinghouse, has been scheduled for the Monday luncheon session. He will take a look at "The Future of the Appliance Industry."

Speakers listed for the afternoon session include A. E. Cascino, director of marketing, Crosley & Bendix Home Appliances; David Hopkins, Div. of Sales, CBS-Columbia; and Lester E. Barrett, president, National Association of Electrical Dealers.

Cascino will talk on "Chart Your Tomorrow," Hopkins on "Successful Sales Techniques," and Barrett on adequate wiring. The dealers will also hear about NARDA's creditor's group life insurance program.

The annual banquet will be held Monday evening. Features will be a talk by Dr. R. S. C. Young of the University of Georgia, presentation of awards including one for "Salesman of the Year," and entertainment.

Another breakfast session will be held Tuesday, with Ed Hegarty, Westinghouse sales training director, as featured speaker. The Sunday panel discussions will be summarized during the morning session and there will be talks on "Analyze Your Business," "Why Sell Kitchens?" and "The Need to Make a Profit."

At the Tuesday luncheon, James P. Carmine, president of Philco, will speak on "Let's All Think Bigger."

The closing session Tuesday afternoon will be devoted to television. Five speakers will cover various aspects of this subject.



Your old friend, the Baker refrigeration machine, is back. First off the line is the popular F6-B ammonia compressor with 3½" stroke and 3½" bore. If the demand warrants it, we're planning to make the full Baker line of machines to protect your perishables. We also carry a complete stock of Baker parts. Contact your nearest Baker distributor, or write direct to: Baker Division, Dept. 4.

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Mitchell Prices--

(Concluded from Page 1, Col. 2)
room air conditioner produced today," Tracey claims. "Dealers always have to work a little harder to sell a higher-priced item, regardless of its quality. We feel their additional efforts should be rewarded with a wider margin of profit."

The revised price list follows:

BEL-AIRE SERIES

Model	No.	Hp.	Volt	Price
M-235	...	½	115	
M-225	...	½	115	\$319.95
M-245	...	¾	115	349.95
M-2005	...	1	230	419.95

SUPER HIGH CAPACITY CHASSIS SERIES

M-345	...	¾	115	399.95
M-2085	...	¾	208	419.95
M-2305	...	¾	230	409.95
M-12085	...	1	208	459.95
M-1005	...	1	230	449.95
M-12485	...	1½	208	509.95
M-1245	...	1½	230	499.95

Trade-In Policy--

(Concluded from Page 1, Col. 3)
items which take up needed selling space, the plan will stimulate business generally, Bosley believes. His company's refrigerator volume increased 50% in a week, he reported.

Bosley decided to give the plan a trial after one of his dealers expressed discouragement over his used refrigerator situation. The dealer bemoaned the fact that he had money tied up in five used boxes on the sales floor.

Welbilt Room Air Conditioners--

(Concluded from Page 1, Col. 2)
sizes of Sill-Slim models—½, ¾, and 1-hp. sizes, and two balance-mounted models—a "high-capacity" 1-hp. and a 1½-hp. size.

Suggested retail prices range from \$299.95 to \$459.95. Prices are approximately the same as last year, with the ½ and high-capacity 1-hp. units unchanged, the ¾-hp. unit up \$10, and the 1½-hp. unit reduced by \$20, the company said.

The Sill-Slim models come in a subdued blue-green baked enamel metal-luster finish. They feature large-size grille openings and four-way adjustable grilles.

"All units have sturdy metal fronts with the exception of the plastic grilles and trim," Welbilt noted. "Lines of the units permit easy cleaning."

"Controls are located on the front panel and are exposed to take advantage of the brightly-colored pushbuttons, as a color accent."

"There are two filters in the unit, both of the permanent washable type. The main large filter for circulated air is situated behind the gold trim piece on the front of the unit where it can be pulled out easily for inspection. In addition, there is a second permanent-type filter, located over the ventilator door opening."

The 1-hp. and 1½-hp. balance-mounted models are similar to comparable 1954 models. They



Welbilt Sill-Slim Room Air Conditioner.

have redesigned grilles, however, to provide multi-directional air flow control, as well as the new blue-green baked enamel finish.

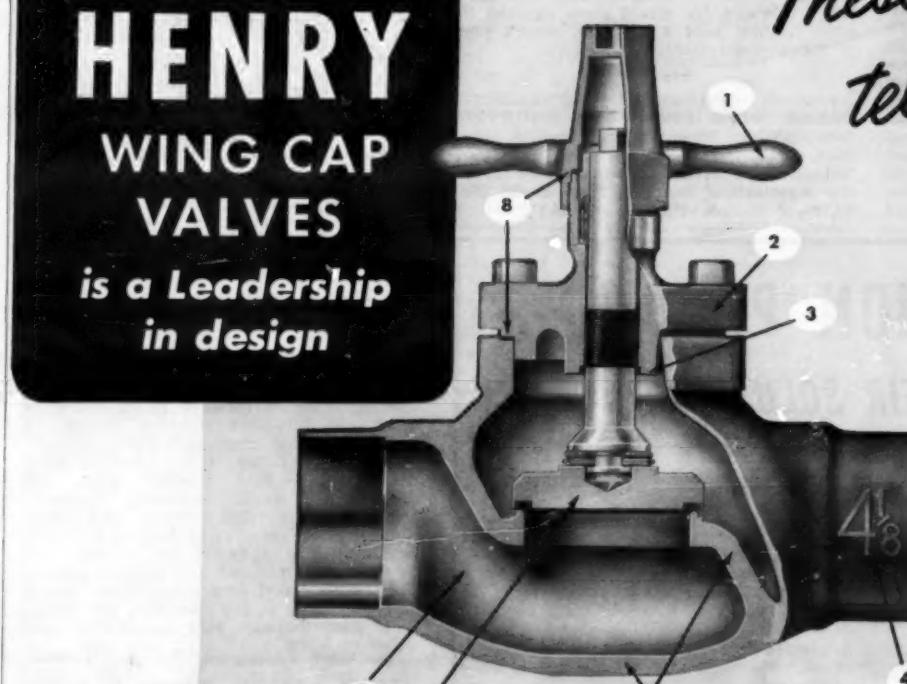
Suggested retail prices follow:

Model	Description	List
550	½ hp., 115 V	\$299.95
575	¾ hp., 115 V	349.95
576	¾ hp., 230 V	349.95
578	¾ hp., 208 V	349.95
590	1 hp., 230 V	359.95
598	1 hp., 208 V	359.95
5100	1 hp., 230 V	389.95
5108	1 hp., 208 V	389.95
5150	1½ hp., 230 V	459.95
5158	1½ hp., 208 V	459.95

For Customer Comfort

SAVANNAH, Ga.—Grand opening of the newly-remodeled and air conditioned Rex Restaurant and Lounge, East Broad St. at 38th St., owned and operated by John Andris, was held recently. The air conditioning was handled by Southeastern Air Conditioning Co.

Back of the Unprecedented demand for HENRY WING CAP VALVES is a Leadership in design



- 1 WING CAP—with stem operating socket.
- 2 BOLTED BONNET for maximum safety.
- 3 BACK SEATING—can be repacked under pressure.
- 4 VALVE SIZE IDENTIFICATION—on Bronze body.
- 5 HEAVY WALL—Bronze alloy or Semi-steel for maximum strength.
- 6 PATENTED, NON-ROTATING SELF-ALIGNING SWIVEL DISC. Easy positive sealing. Minimum seat wear. Chatterproof.
- 7 FULL CAPACITY FLOW THROUGHOUT.
- 8 FULLY RETAINED POSITIVE SEALING GASKETS.



Available in bronze alloy and semi-steel types. Sizes range: ½" to 5½" O.D.S. and ½" to 2" F.P.T. Flanged valves available with brass O.D.S. or steel butt weld adaptors, sizes 1½" to 5½".

Year after year Henry Wing Cap Valves become more popular on both government and civilian refrigeration and air conditioning installations because of the high inherent quality of the valves and their features of design and construction. No other similar product carries such a universal recommendation by wholesalers or is in such wide demand among contractors and service men where the use of a wing cap valve is indicated.

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